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SAN SIMON CIENEGA

INTENSIVE INVENTORY AND ANALYSIS

AND HABITAT MANAGEMENT PLAN

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INVENTORY



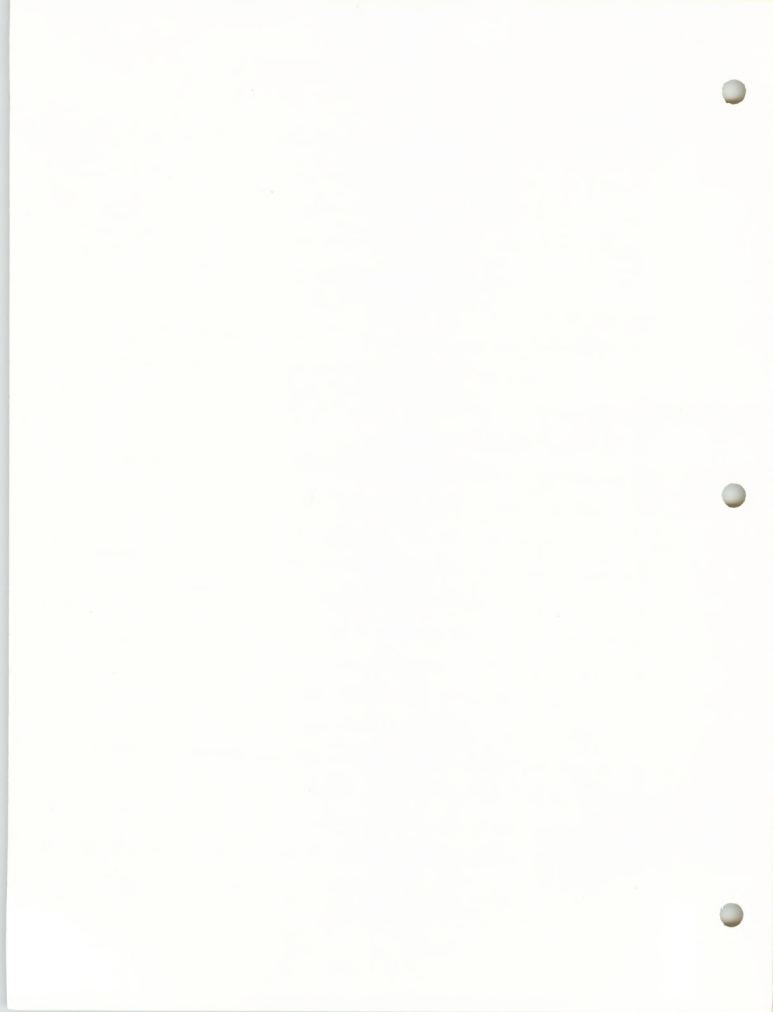


## I. Introduction

The San Simon Cienega Wildlife Habitat Area is one of the few remaining areas in the United States that is capable of supporting Mexican duck populations. Continued loss of waterfowl habitat by drainage of marshes, channelization of the Rio Grande and livestock grazing has resulted in a drastic decline of the Mexican duck (Anas diazi) to its present status - an endangered species.

When the Mexican duck was entered on the U. S. Department of the Interior's list of rare and endangered species, it was estimated that no more than 300 birds were left in the U. S. and probably less than 2,000 in both the United States and Mexico.

The San Simon Cienega itself reached the first stages of degradation when the San Simon Creek stopped flowing in 1952; a direct result of three years of pumping from the sub-surface water table for irrigation of agricultural crops. By 1966, it became apparent that the final stages of degradation had been reached. No free, surface water was available (due to pumping from sub-surface water supplies for irrigation), and food and cover were, for all practical purposes, gone (due to livestock grazing). At this time, the Bureau of Land Management in cooperation with the Bureau of Sport Fisheries and Wildlife, New Mexico Department of Game and Fish and the Arizona Department of Game and Fish initiated development work to restore the lost Mexican duck habitat. The Mexican duck biological unit is restricted to a small, historically wetland-marsh type, hereafter referred to as the Cienega. Inventory information on the Mexican duck



habitat will be restricted to the Cienega (marsh, historically). The habitat area also includes areas outside the biological unit included in the Cienega Ranch Allotment.

Other species habitat found within the habitat area will be included in this report upon completion of the inventory and analysis of these species. These "other" species habitat requirements are considered for management purposes to ensure that no detrimental effects to these species will result from management of the Mexican duck. A partial list of these "other" species are listed in table #1.

The San Simon Cienega Wildlife Habitat Area lies in both New Mexico and Arizona (See habitat area base map). The entire area is administered by the Las Cruces District Office. The habitat area has a total of 47,027 acres within its boundary. 1,504 acres of this area is L. U. (land reacquired by the federal government) and is the area containing the present and potential Mexican duck habitat that can be managed due to its ownership by the federal government. 27,049 acres is vacant public land administered by the Bureau of Land Management the remainder of the area is in private (6,219) or state (12,255 acres) ownership and not subject to waterfowl habitat management by the Bureau at this time (See Habitat Area base map).

New Mexico State University was contracted by the Bureau of Land Management to conduct a study on the Mexican duck and its San Simon Cienega habitat in 1966. The final report completed in 1970 is entitled "Effects of Restoration and Management of the San Simon Marsh on Its Utilization by Mexican Ducks," B.L.M. Contract No. 14-11-0008-2839. The project leader was Dr. Charles A. Davis with research assistants: Vernon Beville,



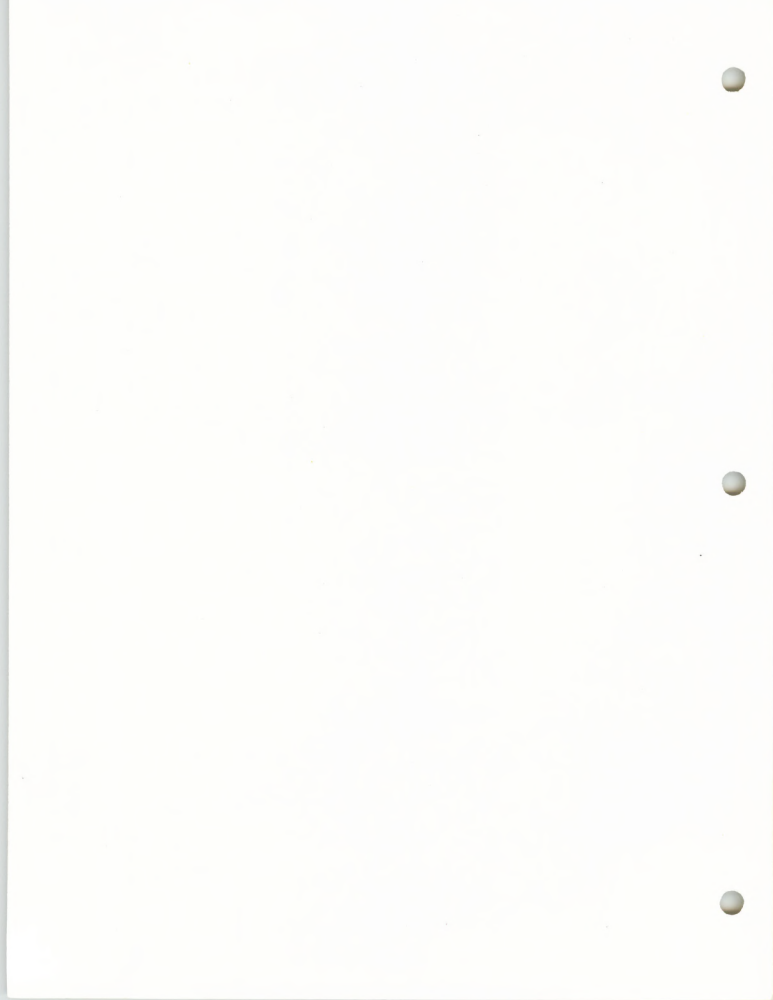
TABLE 1

Species of Birds

|                    |                           |                             |
|--------------------|---------------------------|-----------------------------|
| Pied-billed grebe  | Mourning dove             | Audobon's warbler           |
| Great blue heron   | Ground dove               | Black-throated gray warbler |
| Green heron        | Roadrunner                | Townsend's warbler          |
| Snowy egret        | Flamulated owl            | Hermit warbler              |
| American bittern   | Great horned owl          | MacGillivray's warbler      |
| Canada goose       | Lesser nighthawk          | Yellow throat               |
| Mallard            | Black-chinned hummingbird | Yellow breasted chat        |
| Mexican duck       | Belted kingfisher         | Wilson's warbler            |
| Gadwall            | Red-shafted flicker       | American redstart           |
| Pintail            | Ladder-backed woodpecker  | House sparrow               |
| Green-winged teal  | Arizona Woodpecker        | Eastern meadowlark          |
| Blue-winged teal   | Western kingbird          | Western meadowlark          |
| Cinnamon teal      | Cassin's kingbird         | Yellow-headed blackbird     |
| American widgeon   | Ash-throated flycatcher   | Red-winged blackbird        |
| Shoveler           | Western wood pewee        | Hooded oriole               |
| Redhead            | Vermillion flycatcher     | Scott's oriole              |
| Ring-necked duck   | Horned lark               | Bullock's oriole            |
| Canvasback         | Violet green swallow      | Brewer's blackbird          |
| Ruddy duck         | Rough-winged swallow      | Brown-headed cowbird        |
| Common Merganser   | Barn swallow              | Bronzed cowbird             |
| Turkey vulture     | Common raven              | Western tanager             |
| Sharp-shinned hawk | Verdin                    | Blue tanager                |
| Cher's hawk        | Brown creeper             | Blue grosbeak               |
| ailed hawk         | House wren                | House finch                 |
| Swainson's hawk    | Cactus wren               | American goldfinch          |
| Ferruginous hawk   | Mockingbird               | Green-tailed towhee         |
| Marsh hawk         | Cressel thrasher          | Rufous-sided towhee         |
| Sparrow hawk       | Robin                     | Brown towhee                |
| Sealed quail       | Hermit thrush             | Lark bunting                |
| Gambel's quail     | Water pipit               | Lark sparrow                |
| American coot      | Loggerhead shrike         | Black-throated sparrow      |
| Killdeer           | Starling                  | Gray headed junco           |
| Solitary sandpiper | Bell's vereo              | White-crowned sparrow       |
| Willet             | Virginia's warbler        | Lincoln's sparrow           |
| Lesser yellowlegs  | Lucy's warbler            |                             |
| White-winged dove  | Yellow warbler            |                             |

Mammals

|               |                        |
|---------------|------------------------|
| Raccoon       | Bobcat                 |
| Coati         | Numerous small rodents |
| Badger        | Porcupine              |
| Skunk         | Blacktail Jackrabbit   |
| Coyote        | Desert cottontail      |
| Gray fox      | Javelina               |
| Mountain lion | Mule deer              |



Jerry Stintz, and A. D. Pack. The research covered a period from July, 1966 to August 1970.

This research report adequately serves as an inventory of the habitat area. Therefore, this presentation of inventory information includes the more pertinent information that can be obtained from the University study and additional information obtained after completion of the study. A copy of the report is on file in District, State and Denver Service Center Offices.

## II. Habitat Condition

### A. Present Condition

Waterfowl food in the Cienega is restricted, primarily, to the water areas and associated "wetland" types in close proximity to water. Other plant food species desirable to waterfowl are present throughout the Cienega but are subject to grazing by cattle and therefore, present only when livestock are not grazing the Cienega (this period is normally from July through August).

Dependable or yearlong food sources are present in all water areas, fenced areas around the potholes and Cienega Lake (See base map and overlays for locations).

Waterfowl<sup>food</sup> species present in the habitat area are:

Pondweed - Potamogeton sp.

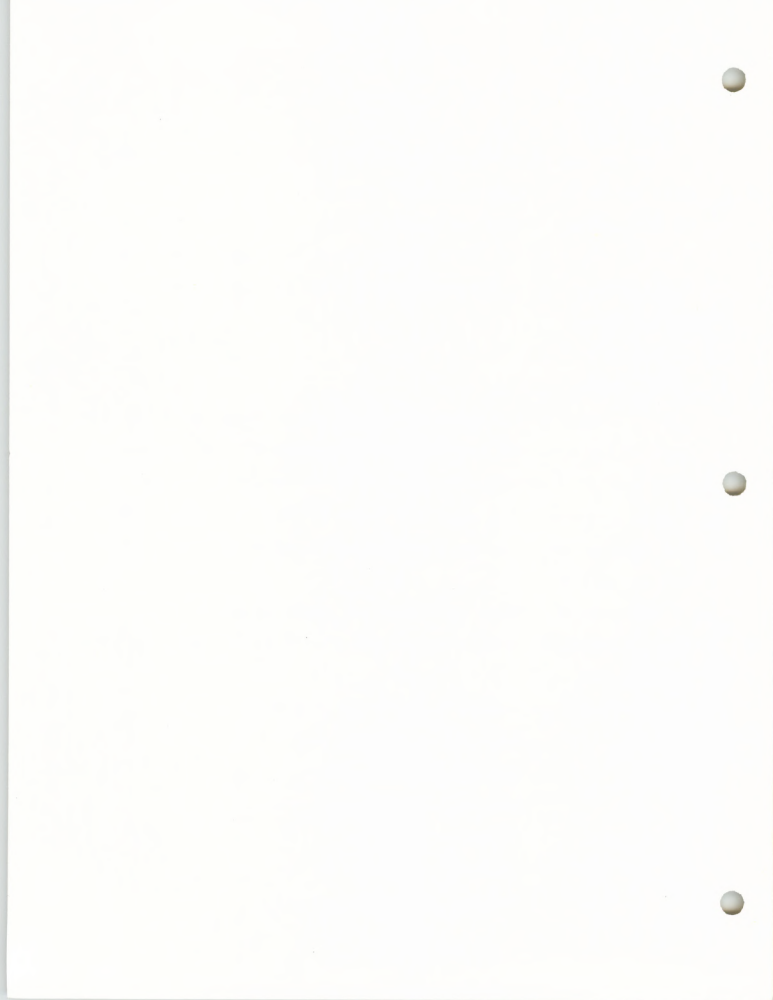
Wildmillet - Echinochloa sp.

Smartweed - Polygonum sp.

Bulrush - Scirpus sp.

Spikerush - Eleocharis sp.

Saltgrass - Distichlis stricta





Sedge - Carex sp.

Mesquite - Prosopis juliflora

Animal Matter - various

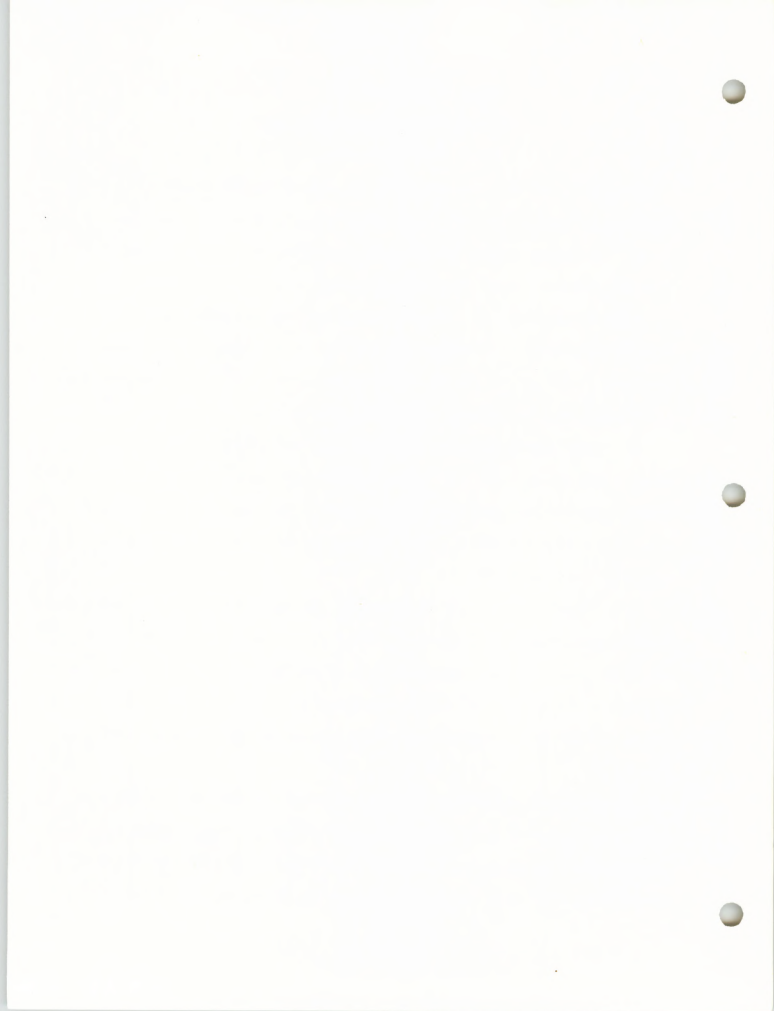
The main plant food species known to be used are sago pondweed (Potamogeton pectinatus) and wildmillet (Echinochloa sp.). More food habits information of the Mexican duck is desired and will be obtained through continued observation and food habits studies.

Additional food may be available in nearby agricultural areas that are producing sorghum crops and alfalfa (two crops useable to waterfowl species ), but this is not definitely known. Should this be substantiated, these areas will be included within the habitat area.

Cover and nesting habitat, like food, is restricted primarily to water areas and fenced areas around the potholes and Cienega Lake. Grazing plays a particularly important role in availability of cover for nesting and escape habitat. Only in areas excluding cattle grazing, is adequate cover available.

The Cienega was surveyed to determine the vegetative species composition, density and percent of occurrence. Table 2 through 8 present the information obtained. These tables indicate that food and cover plant species are found throughout the Cienega in varying densities and percents of occurrence. The locations of the vegetative types are found on the vegetative type overlay.

Plant species found to be of value as cover for nesting, escape, etc. are: alkali sacaton (sporobolus airoides), saltgrass (distichlis stricta), and knotgrass (Paspalum sp.). the densities and percent of occurrence of these species are found in Table 2 through 8. These tables indicate that



alkali sacaton and desert saltgrass are the most common, desirable species found in all vegetative types. Species other than those previously indicated are also considered valuable as cover to the Mexican duck but do not receive adequate moisture and are subject to cattle grazing outside fenced areas at the present time.

A problem exists in the Cienega with extreme densities of undesirable vegetation. These undesirable plants (aquatic vascular, emergent and terrestrial) preclude growth of desirable cover and food species in potholes 2,3,4, Cienega Lake area and dike 2. These species include sunflowers (Helianthus annuus), common three square (Scirpus olneyi), and cattails (Typha latifolia). Cattails and bulrushes are so dense in pothole 2 that total water surface area is reduced and channels are blocked to passage by Mexican ducks.

Other undesirable species include cocklebur (Xanthium sp.), Drymaria (Drymaria pachyphylla), Mexican Milkweed (Asclepias sp) and Tamarix (Tamarix pentandra). Tamarix is in the first stages of invasion and restricted to pothole #1, Cienega Lake and dike 2.

Water areas considered useable by Mexican ducks in the habitat area are: State-line pond, spreader pond, east house tank, west house tank, coyote tank, pump tank and north channel (all of these water areas are on private or state land controlled by the Cienega Ranch). Water areas on land administered by BLM include: Potholes 1, 2, 3, and 4, Cienega Lake and Dike 2 (See Base map for locations).

All water areas on private land (See Base Map) are used primarily for livestock waters and therefore are not filled to capacity yearlong.

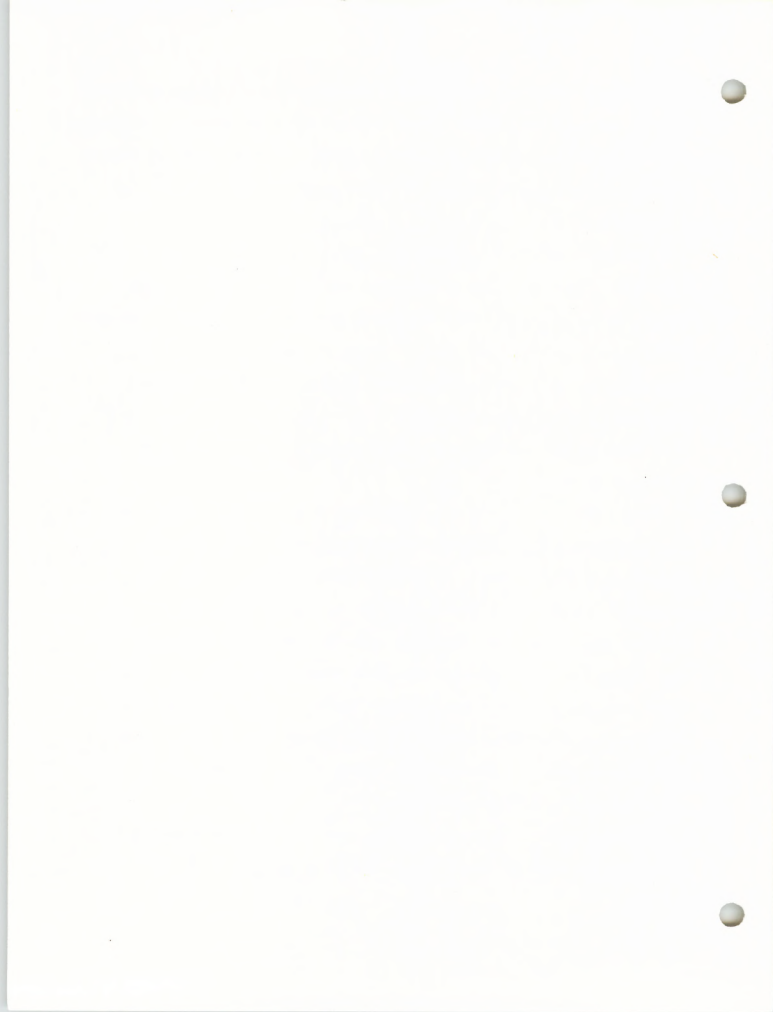
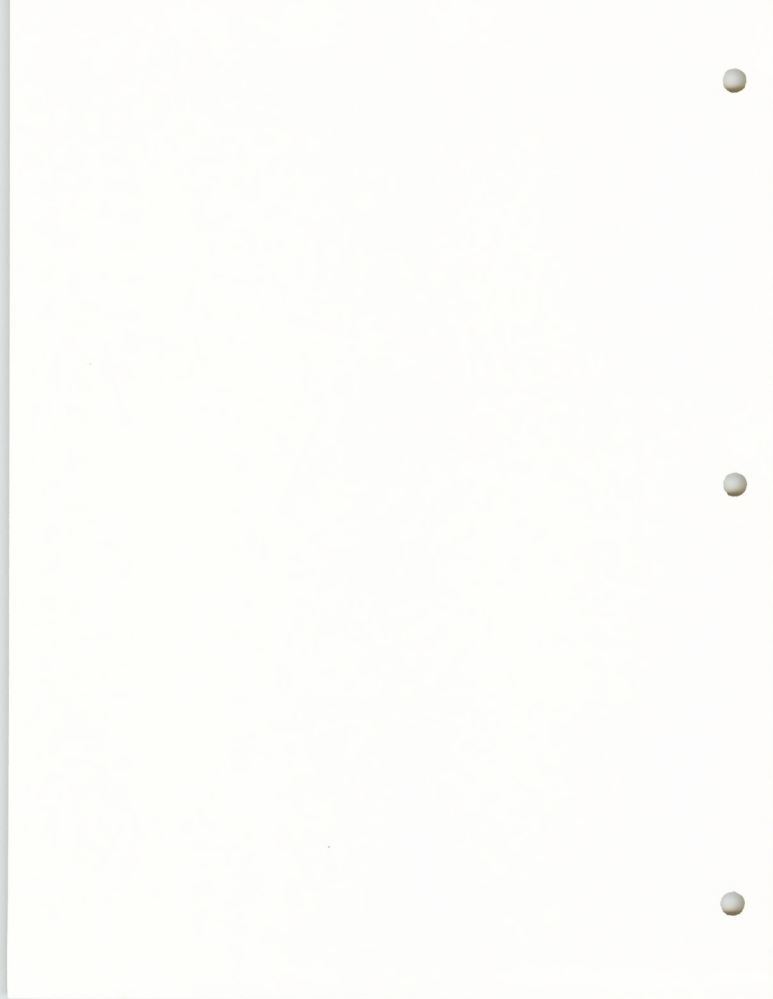


Table 2. Percent composition, stem density and percent occurrence of species in the Tall Grass vegetation type, based on 126 one-fourth meter quadrats.

| Species                          | % Composition<br>based on density | Stem density<br>per sq. meter | Percent<br>occurrence |
|----------------------------------|-----------------------------------|-------------------------------|-----------------------|
| <i>Sporobolus airoides</i>       | 21.2                              | 20.2                          | 58.7                  |
| <i>Carex</i> sp.                 | 17.8                              | 17.0                          | 10.3                  |
| <i>Amaranthus</i> sp.            | 13.3                              | 12.7                          | 7.9                   |
| <i>Distichlis stricta</i>        | 9.4                               | 9.0                           | 6.3                   |
| <i>Leptochloa cognatum</i>       | 7.3                               | 7.0                           | 10.3                  |
| <i>Juncus</i> spp.               | 5.9                               | 6.6                           | 7.9                   |
| <i>Euphorbia</i> sp.             | 4.7                               | 3.9                           | 5.6                   |
| <i>Panicum obtusum</i>           | 3.3                               | 2.9                           | 7.1                   |
| <i>Xanthium saccharatum</i>      | 2.6                               | 2.5                           | 4.8                   |
| <i>Amaranthus californicus</i>   | 2.5                               | 2.4                           | 8.7                   |
| <i>Setaria latifolia</i>         | 2.5                               | 2.3                           | 5.6                   |
| <i>Tridens pulchellus</i>        | 2.4                               | 2.3                           | 5.6                   |
| <i>Calystroemia</i> sp.          | 1.7                               | 1.2                           | 1.6                   |
| <i>Eragrostis</i> sp.            | 1.3                               | 1.0                           | 2.4                   |
| <i>Solanum elaeagnifolium</i>    | 1.1                               | 1.0                           | 3.2                   |
| <i>Echinochloa</i> sp.           | 0.7                               | 0.7                           | 1.6                   |
| <i>Portulaca</i> sp.             | 0.7                               | 0.7                           | 3.2                   |
| <i>Andropogon saccharoides</i>   | 0.6                               | 0.6                           | 3.2                   |
| <i>Medicago</i> sp.              | 0.4                               | 0.4                           | 2.4                   |
| <i>Paspalum</i> sp.              | 0.3                               | 0.3                           | 0.8                   |
| <i>Sida lepidota</i>             | 0.3                               | 0.3                           | 0.8                   |
| <i>Asclepias subverticillata</i> | 0.2                               | 0.2                           | 1.6                   |
| <i>Leptochloa</i> sp.            | 0.1                               | 0.1                           | 0.8                   |
| <i>Prosopis juliflora</i>        | 0.1                               | 0.1                           | 0.8                   |
| Bare ground                      |                                   |                               | 4.8                   |
| TOTALS                           | 99.9                              | 95.4                          |                       |



le 3. Percent composition, stem density and percent occurrence of species in the Sedge vegetation type, based on 103 one-tenth meter quadrats.

| Species                      | % Composition<br>based on density | Stem density<br>per sq. meter | Percent<br>occurrence |
|------------------------------|-----------------------------------|-------------------------------|-----------------------|
| <i>Carex</i> sp.             | 67.3                              | 229.2                         | 58.3                  |
| <i>Leptoloma cognatum</i>    | 16.5                              | 56.2                          | 60.9                  |
| <i>Anemopsis</i> spp.        | 4.6                               | 15.8                          | 30.1                  |
| <i>Juncus</i> spp.           | 3.7                               | 12.6                          | 8.7                   |
| <i>Dietrichia stricta</i>    | 2.3                               | 7.8                           | 5.8                   |
| <i>Xanthium saccharatum</i>  | 2.0                               | 3.3                           | 12.7                  |
| <i>Paspalum</i> sp.          | 0.9                               | 3.1                           | 12.7                  |
| <i>Scirpus</i> sp.           | 0.9                               | 2.9                           | 2.9                   |
| <i>unicum obtusum</i>        | 0.7                               | 2.5                           | 5.8                   |
| <i>Aster</i> spp.            | 0.6                               | 2.1                           | 12.7                  |
| <i>Echinochloa</i> sp.       | 0.6                               | 1.9                           | 6.8                   |
| <i>Amaranthus</i> sp.        | 0.2                               | 0.8                           | 5.9                   |
| <i>Setaria lutescens</i>     | 0.2                               | 0.6                           | 2.9                   |
| <i>Digitaria sanguinalis</i> | 0.2                               | 0.5                           | 2.9                   |
| <i>Sporobolus airoides</i>   | 0.2                               | 0.4                           | 2.9                   |
| <i>Polygonum</i> sp.         | 0.2                               | 0.3                           | 2.9                   |
| <i>Euphorbia</i> sp.         | 0.2                               | 0.2                           | 2.0                   |
| <i>Leptochloa</i> sp.        | 0.2                               | 0.1                           | 2.0                   |
| <i>Helianthus annuus</i>     | 0.2                               | 0.1                           | 2.0                   |
| TOTALS                       | 100.0                             | 340.4                         |                       |

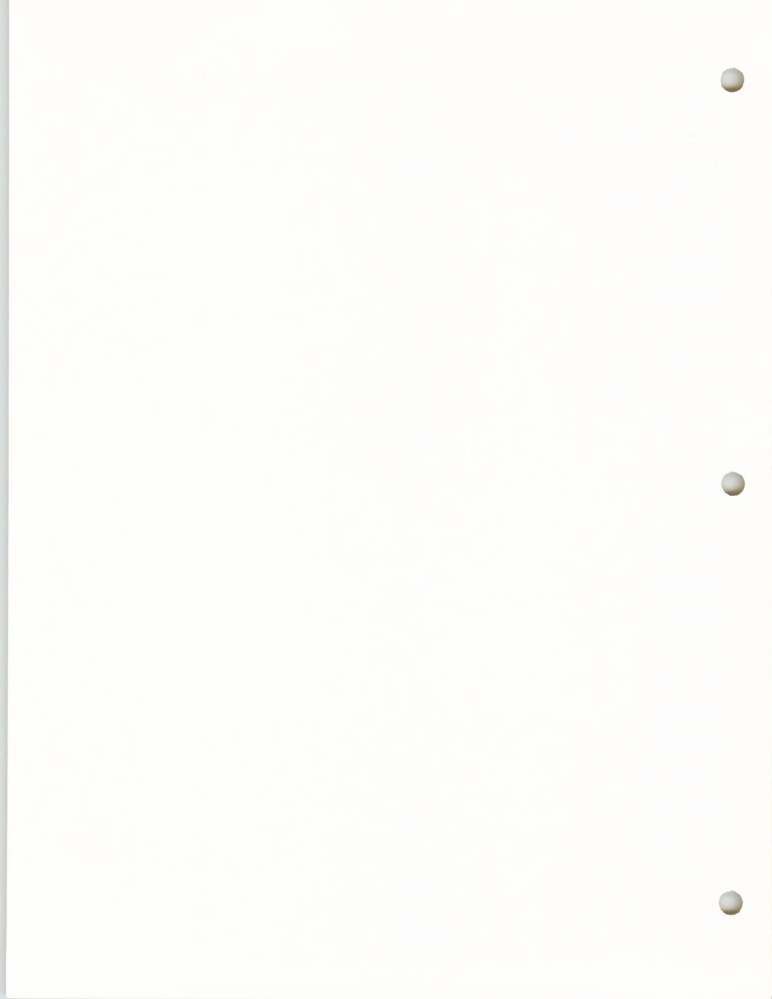




Table 4. Percent composition, stem density and percent occurrence of species in the Sedge-surf/over vegetation type, based on 100 one-tenth meter quadrats

| Species                          | % Composition<br>based on density | Stem density<br>per sq. meter | Percent<br>occurrence |
|----------------------------------|-----------------------------------|-------------------------------|-----------------------|
| <i>Carex</i> sp.                 | 89.1                              | 423.0                         | 75.0                  |
| <i>Amaranthus</i> sp.            | 9.5                               | 50.3                          | 26.0                  |
| <i>Leptoloma cognatum</i>        | 4.5                               | 23.6                          | 46.0                  |
| <i>Juncus</i> spp.               | 1.5                               | 8.0                           | 5.0                   |
| <i>Anemopsis</i> sp.             | 1.3                               | 6.6                           | 14.0                  |
| <i>Distichlis stricta</i>        | 1.2                               | 6.1                           | 7.0                   |
| <i>Xanthium saccharatum</i>      | 0.9                               | 3.2                           | 11.0                  |
| <i>Panicum obtusum</i>           | 0.2                               | 1.2                           | 5.0                   |
| <i>Euphorbia</i> sp.             | 0.2                               | 1.1                           | 3.0                   |
| <i>Leptochloa</i> spp.           | 1.2                               | 1.1                           | 1.0                   |
| <i>Helianthus annuus</i>         | 0.2                               | 1.1                           | 6.0                   |
| <i>Asclepias subverticillata</i> | 0.2                               | 0.8                           | 3.0                   |
| Unidentified forb                | 0.1                               | 0.5                           | 1.0                   |
| <i>Aster</i> spp.                | 0.1                               | 0.3                           | 2.0                   |
| <i>Echinochloa</i> sp.           | 0.1                               | 0.3                           | 1.0                   |
| <i>Paspalum</i> sp.              | 0.1                               | 0.3                           | 1.0                   |
| <i>Sporobolus airoides</i>       | 0.1                               | 0.2                           | 2.0                   |
| <i>Portulaca</i> sp.             | 0.1                               | 0.1                           | 1.0                   |
| <i>Solanum elaeagnifolium</i>    | 0.1                               | 0.1                           | 1.0                   |
| Bare ground                      |                                   | 527.9                         | 3.0                   |
| TOTALS                           | 100.1                             |                               |                       |

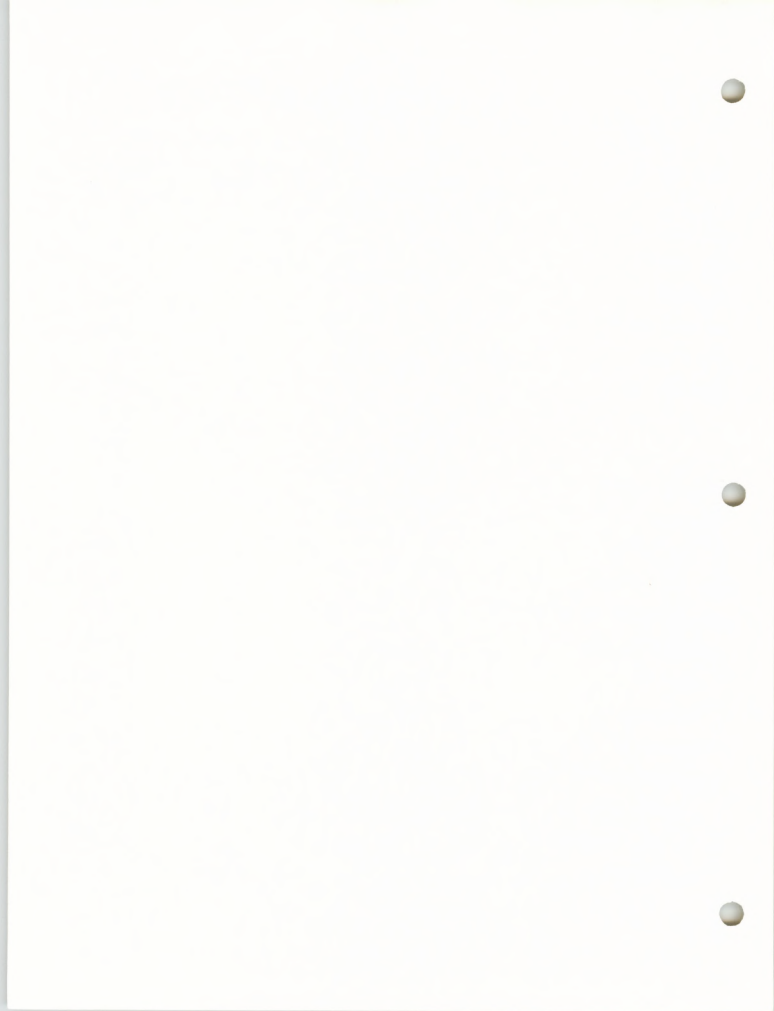


Table 6. Percent composition, stem density and percent occurrence of species in Enclosure No. 1, based on 101 one-tenth meter quadrats.

| Species                      | % composition<br>based on density | Stem density<br>per sq. meter | Percent<br>occurrence |
|------------------------------|-----------------------------------|-------------------------------|-----------------------|
| <i>Sporobolus airoides</i>   | 48.9                              | 19.6                          | 39.2                  |
| <i>Juncus</i> spp.           | 1.8                               | 6.6                           | 1.0                   |
| <i>Digitaria sanguinalis</i> | 18.0                              | 5.5                           | 10.6                  |
| <i>Distichlis stricta</i>    | 13.9                              | 4.3                           | 4.9                   |
| <i>Echinochloa</i> sp.       | 2.5                               | 1.0                           | 3.9                   |
| <i>Leptoloma coarctatum</i>  | 2.3                               | 0.9                           | 2.9                   |
| <i>Carex</i> sp.             | 2.0                               | 0.8                           | 1.0                   |
| <i>Leptochloa</i> sp.        | 1.0                               | 0.4                           | 2.9                   |
| <i>rosopis juliflora</i>     | 0.5                               | 0.2                           | 1.9                   |
| Bare ground                  | 1.1                               | ---                           | 43.2                  |
| TOTALS                       | 99.9                              | 39.3                          |                       |

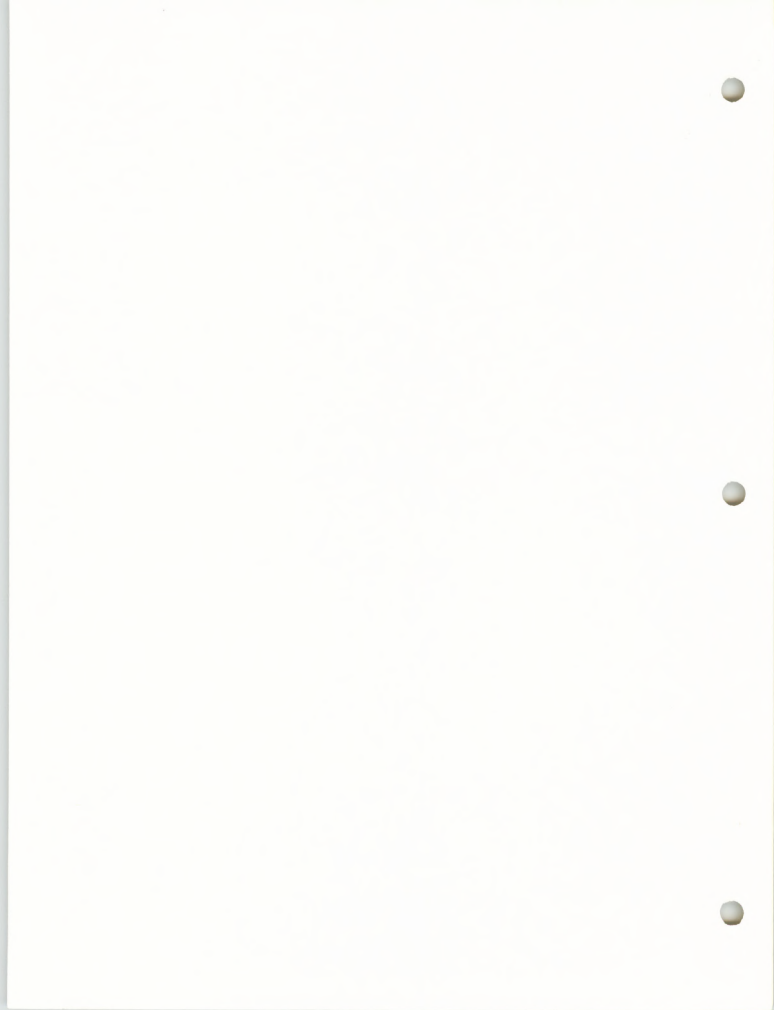


Table 6. Percent composition, area density and percent occurrence of species in Exclosure No. 2, based on 102 one-tenth meter quadrats.

| Species                      | % composition<br>based on density | Stem density<br>per sq. meter | Percent<br>occurrence |
|------------------------------|-----------------------------------|-------------------------------|-----------------------|
| <i>Carex</i> sp.             | 53.1                              | 90.9                          | 23.5                  |
| <i>Scirpus</i> sp.           | 22.2                              | 38.0                          | 34.3                  |
| <i>Leptoloma coarctatum</i>  | 14.5                              | 25.5                          | 45.1                  |
| <i>Echinochloa</i> sp.       | 2.5                               | 5.0                           | 15.7                  |
| <i>Sporobolus airoides</i>   | 1.5                               | 3.2                           | 17.6                  |
| <i>Helianthus annuus</i>     | 1.5                               | 3.2                           | 17.6                  |
| <i>Amaranthus</i> sp.        | 0.9                               | 1.6                           | 2.9                   |
| <i>Digitaria sanguinalis</i> | 0.5                               | 0.9                           | 1.9                   |
| <i>Rumex</i> sp.             | 0.5                               | 0.9                           | 2.9                   |
| <i>Euphorbia</i> sp.         | 0.5                               | 0.8                           | 1.0                   |
| <i>Cynodon dactylon</i>      | 0.4                               | 0.7                           | 1.0                   |
| <i>Polygonum</i> sp.         | 0.2                               | 0.4                           | 3.9                   |
| <i>Sitanion</i> sp.          | 0.1                               | 0.2                           | 1.0                   |
| Bare ground                  | —                                 | —                             | 15.7                  |
| TOTALS                       | 100.0                             | 171.3                         |                       |

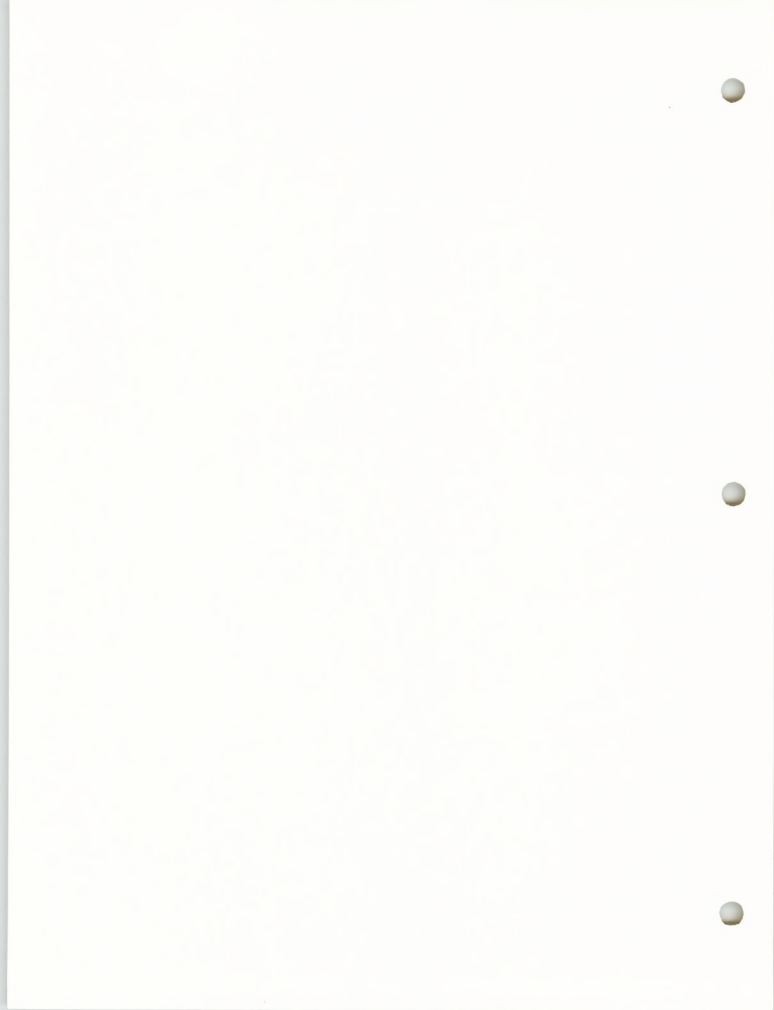


Table 7. Percent composition of species density and percent occurrence of species in Enclosure No. 2, based on 100 one-meter cover quadrats.

| Species                       | % Composition<br>based on density | Species density<br>per sq. meter | Percent<br>occurrence |
|-------------------------------|-----------------------------------|----------------------------------|-----------------------|
| <i>Carex</i> sp.              | 72.1                              | 105.4                            | 34.3                  |
| <i>Leptochloa coarctata</i>   | 1.0                               | 17.1                             | 42.2                  |
| <i>Amaranthus</i> sp.         | 1.0                               | 6.4                              | 18.6                  |
| <i>Panicum obtusum</i>        | 1.0                               | 5.7                              | 2.9                   |
| <i>Echinochloa</i> sp.        | 1.0                               | 2.3                              | 4.9                   |
| <i>Leptochloa</i> sp.         | 1.0                               | 2.1                              | 3.9                   |
| <i>Distichlis spicata</i>     | 1.0                               | 2.3                              | 1.9                   |
| Unidentified forb             | 1.0                               | 1.9                              | 1.0                   |
| <i>Anemopsis</i> sp.          | 0.1                               | 1.3                              | 2.9                   |
| <i>Helianthus annuus</i>      | 0.1                               | 0.5                              | 2.9                   |
| <i>Xanthium strumarium</i>    | 0.1                               | 0.6                              | 2.9                   |
| <i>Solanum elaeagnifolium</i> | 0.1                               | 0.2                              | 1.9                   |
| <i>Euphorbia</i> sp.          | 0.1                               | 0.1                              | 1.0                   |
| <i>Proserpinaca juliflora</i> | 0.1                               | 0.1                              | 11.0                  |
| <i>Portulaca</i> sp.          | 0.1                               | 0.1                              | 1.0                   |
| Bare ground                   | 11.4                              | 1.0                              | 27.5                  |
| TOTALS                        | 100.2                             | 146.2                            |                       |

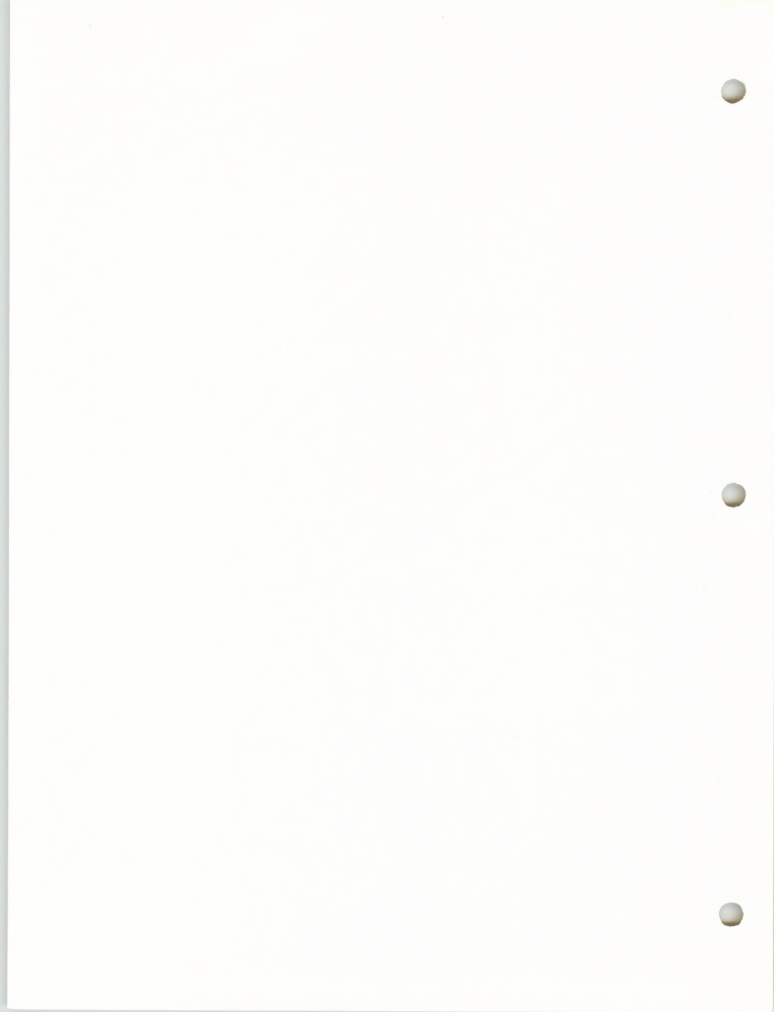
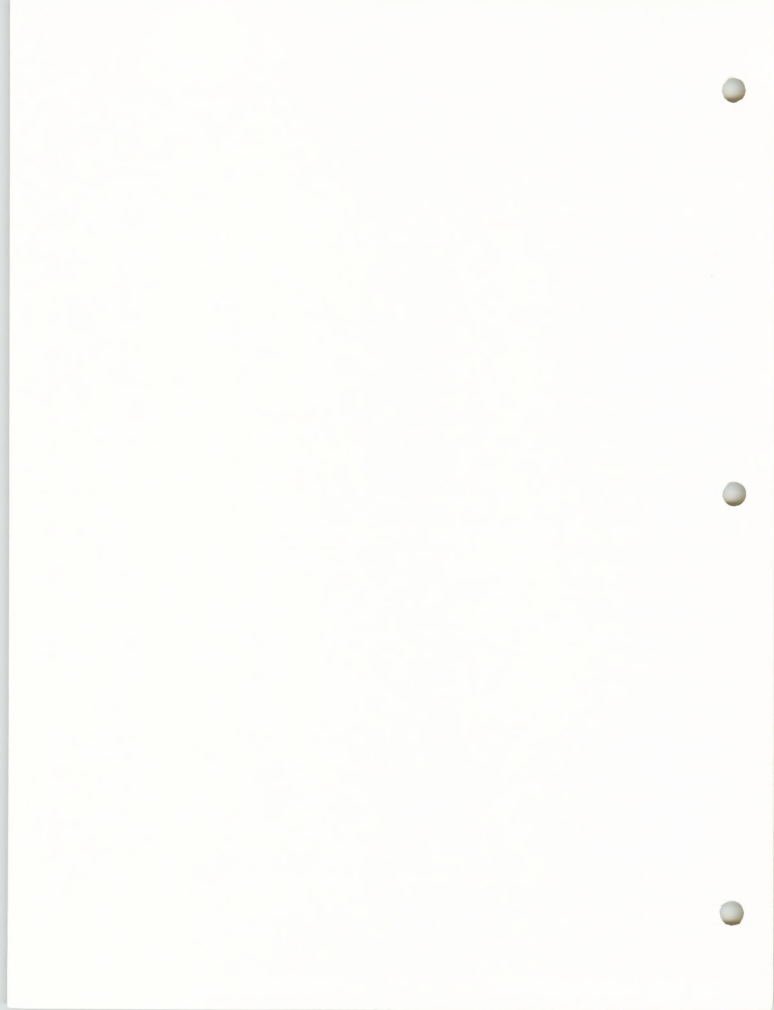




Table 8. Percent cover, density, and percent occurrence of species in Enclosure B-1, based on 100 quadrats, water quadrats.

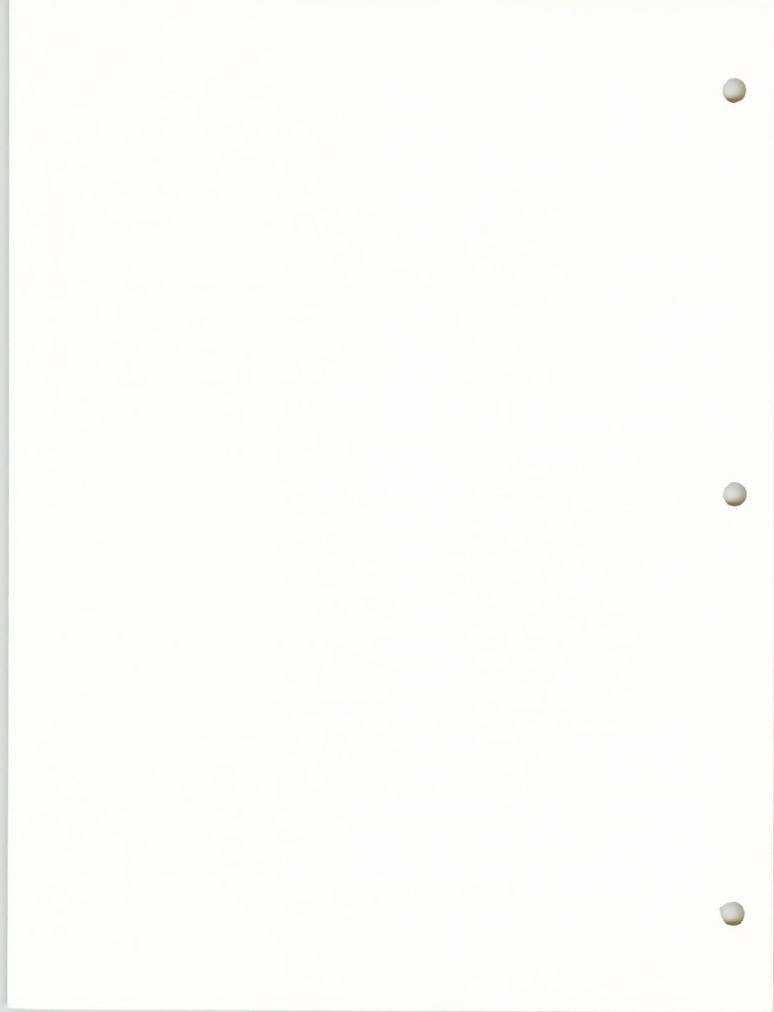
| Species                       | % Cover (mean<br>based on density) | Stem density<br>per sq. meter | Percent<br>occurrence |
|-------------------------------|------------------------------------|-------------------------------|-----------------------|
| <i>Amaranthus</i> sp.         | 2.8                                | 62.5                          | 41.0                  |
| <i>Panicum polystachyon</i>   | 2.7                                | 11.0                          | 11.0                  |
| <i>Leptochloa</i> sp.         | 1.8                                | 5.4                           | 10.0                  |
| <i>Distichlis spicata</i>     | 2.9                                | 3.9                           | 3.0                   |
| <i>Echinochloa</i> sp.        | 1.6                                | 3.4                           | 10.0                  |
| <i>Digitaria sanguinalis</i>  | 2.5                                | 2.5                           | 3.0                   |
| <i>Euphorbia</i> sp.          | 2.2                                | 2.2                           | 8.0                   |
| <i>Sporobolus airoides</i>    | 1.6                                | 1.8                           | 13.0                  |
| <i>Carex</i> sp.              | 1.7                                | 1.7                           | 3.0                   |
| <i>Helianthus scaberrimus</i> | 1.2                                | 1.2                           | 9.0                   |
| <i>Solanum elaeagnifolium</i> | 1.1                                | 1.1                           | 5.0                   |
| <i>Aster</i> spp.             | 0.8                                | 0.8                           | 5.0                   |
| <i>Leptoloma cognatum</i>     | 0.6                                | 0.8                           | 5.0                   |
| <i>Sida lapidata</i>          | 0.6                                | 0.6                           | 1.0                   |
| <i>Prosopis juliflora</i>     | 0.4                                | 0.4                           | 4.0                   |
| <i>Chloris virgate</i>        | 0.3                                | 0.3                           | 1.0                   |
| <i>Cynodon dactylon</i>       | 0.2                                | 0.1                           | 1.0                   |
| Bare ground                   | 1.00                               | ---                           | 20.0                  |
| TOTALS                        | 9.2                                | 99.5                          |                       |



Because of this, water areas on private land are of questionable value to the Mexican duck (these areas could possibly draw a mated pair to them and after the nest is established, dry up). These areas also have very little terrestrial food and cover associated with them. These areas are used by the Mexican duck and should be considered as water components in the habitat area.

The remainder of the water areas are on lands administered by the Bureau of Land Management. Therefore, these areas are controlled explicitly for waterfowl habitat. The Bureau's water areas are all supplied by two wells and associated pipelines. They range in water surface area from one-half to three-quarters of an acre in the potholes, two surface acres in Cienega Lake and four surface acres in dike 2 (See Base Map for locations). Presently the Bureau has water rights to 345 acre feet of water, in New Mexico, to fill and maintain water levels in these water areas.

The four potholes were constructed by blasting (using ammonium nitrate and dynamite) with charges placed in such a manner as to create islands and channels (See figures 1, 2, 3, & 4). Presently the potholes are unsatisfactory. Displaced dirt, from the blasting creates a two-fold problem; steep banks and areas denuded of vegetation. Disturbance from the blasting has excellerated growth of undesireable plant species, primarily sunflowers in potholes 2, 3, and 4. The steep banks are prohibitive to duck passage onto the islands and the perimeter and also prevent vision by the ducks from the water. In areas where dirt was placed, by the explosion, little vegetation is present. These areas are hard-packed and prohibitive to re-establishment of vegetation.



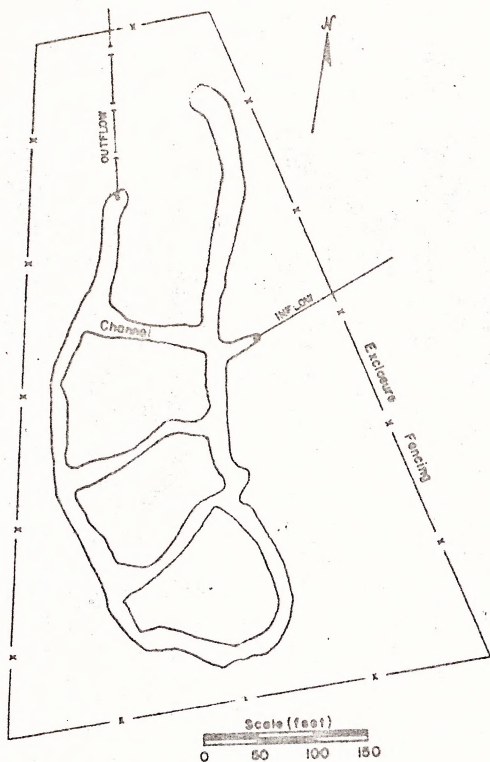
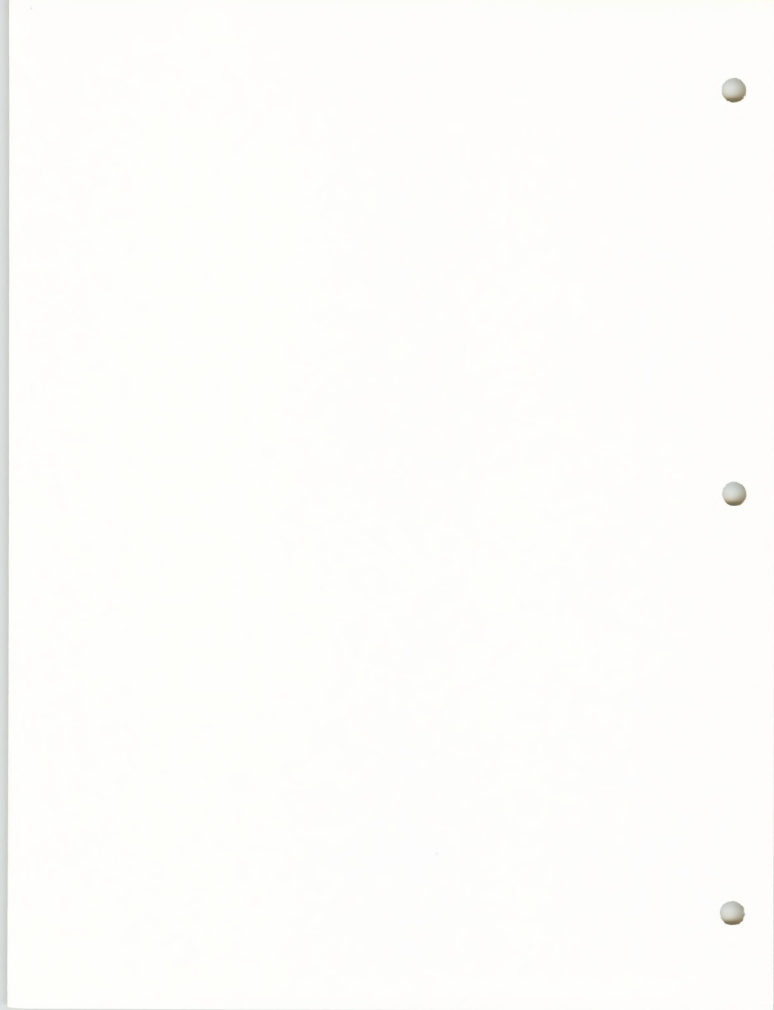


Figure 1. Pothole 1.



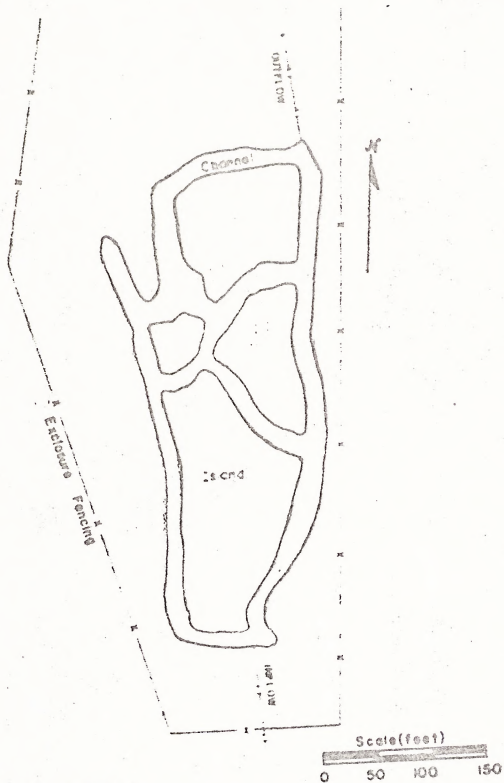


Figure 2. Pothole 2.

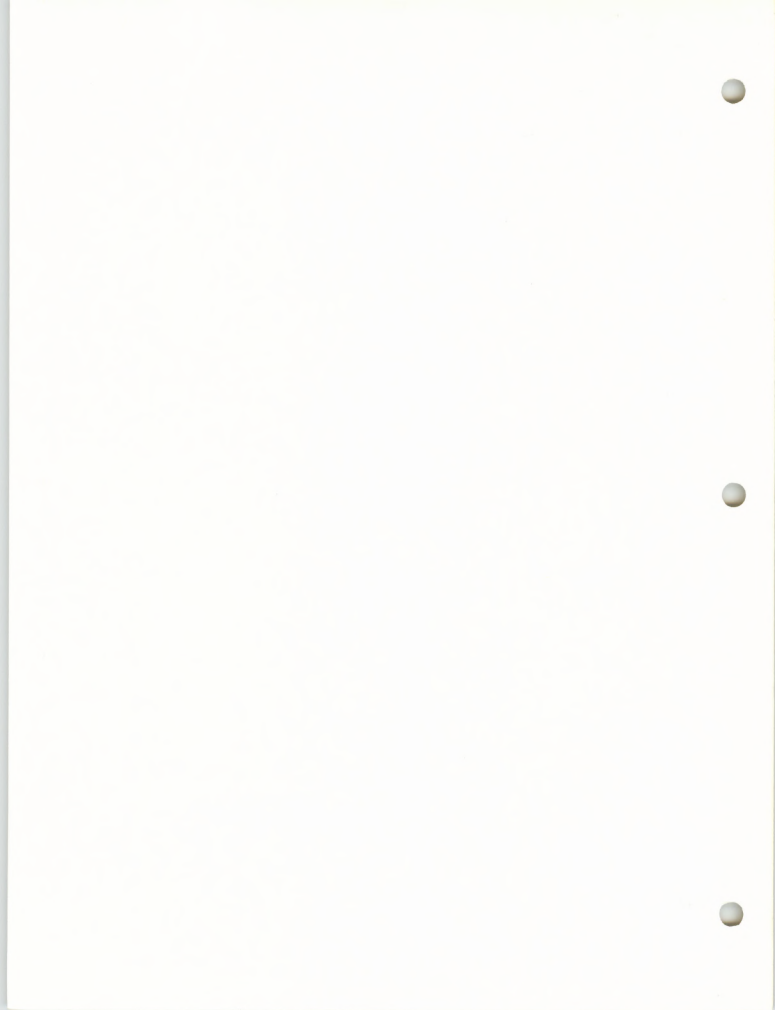






Figure 3. Pot-hole 3.

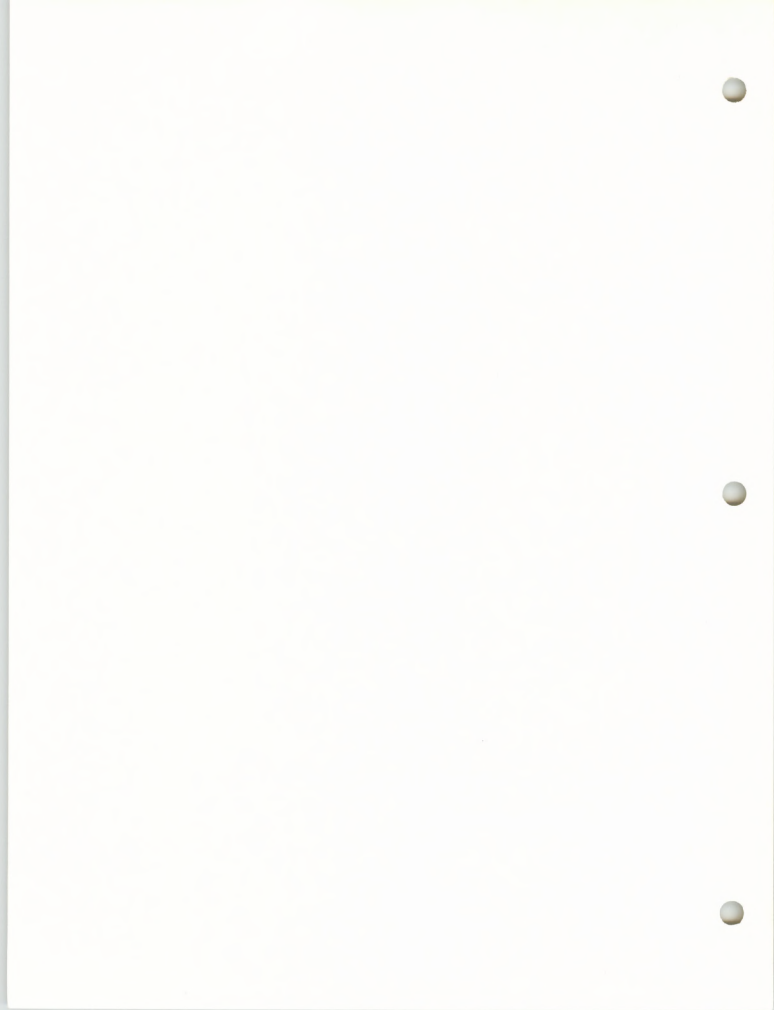
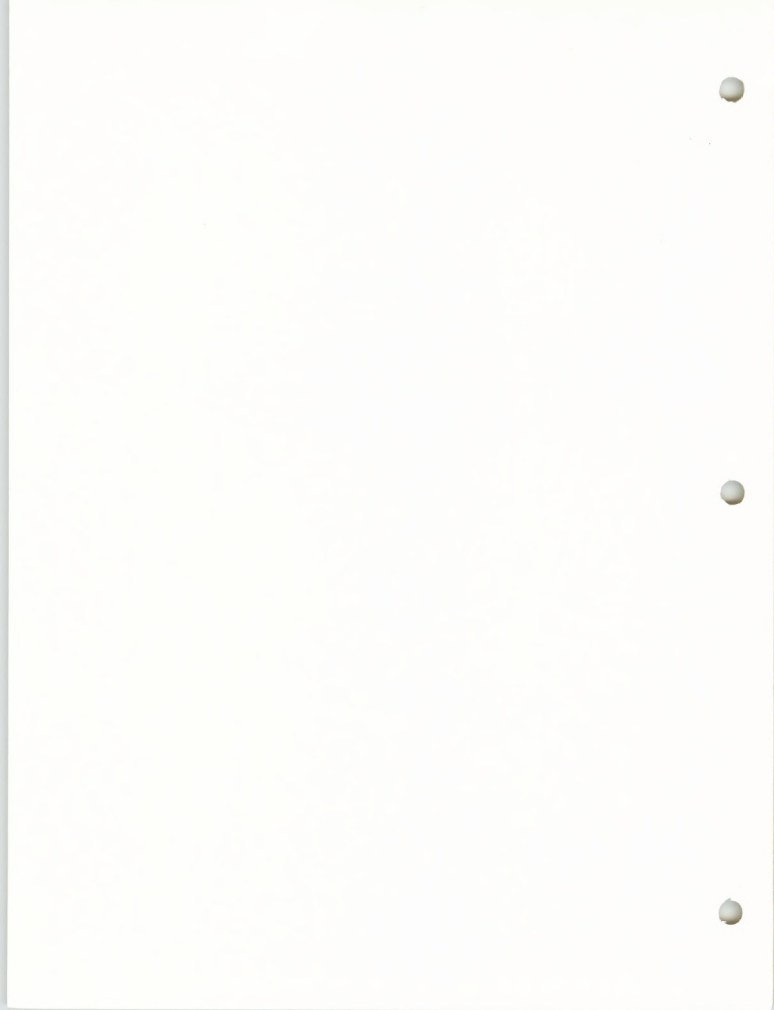




Figure 4. Pothele 4.



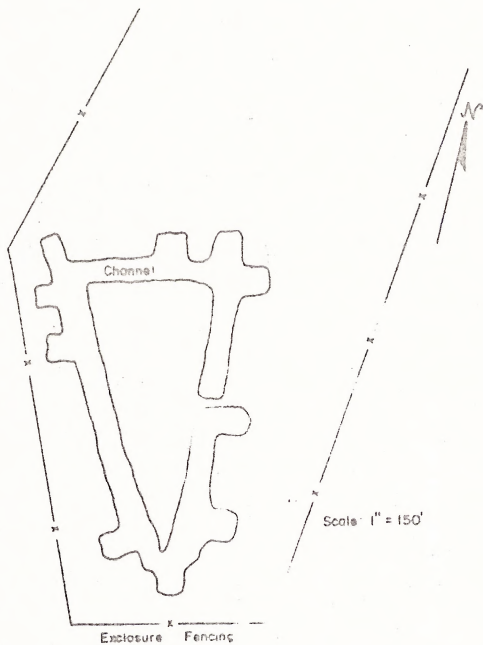


Figure 5. Steep Lake

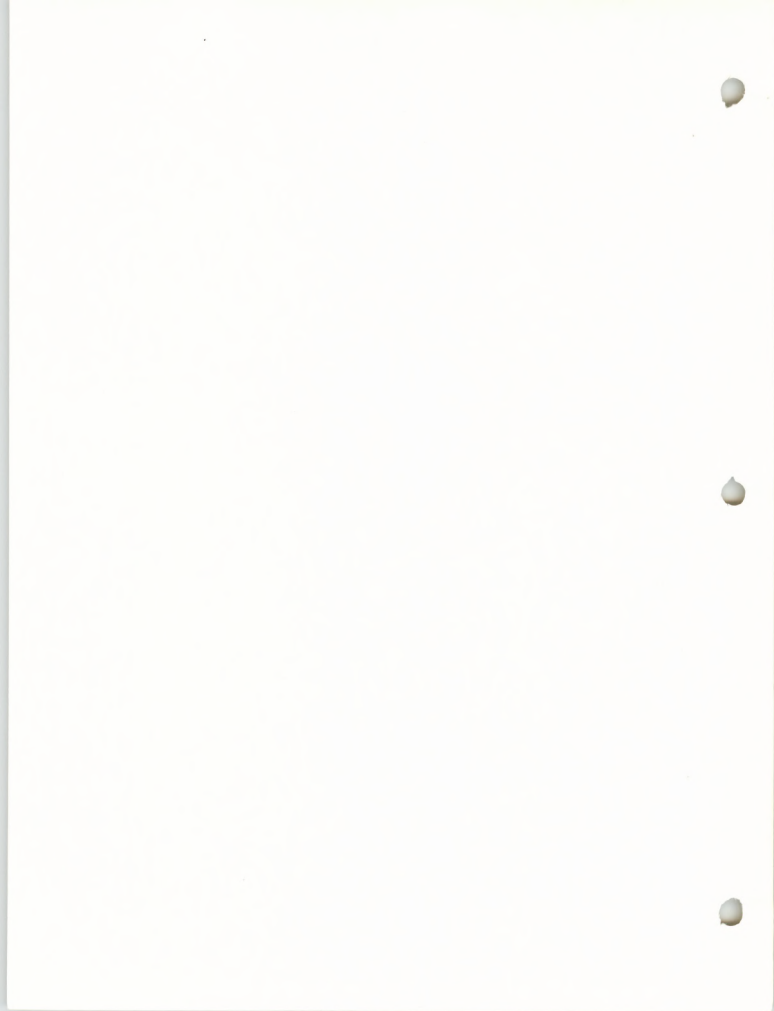
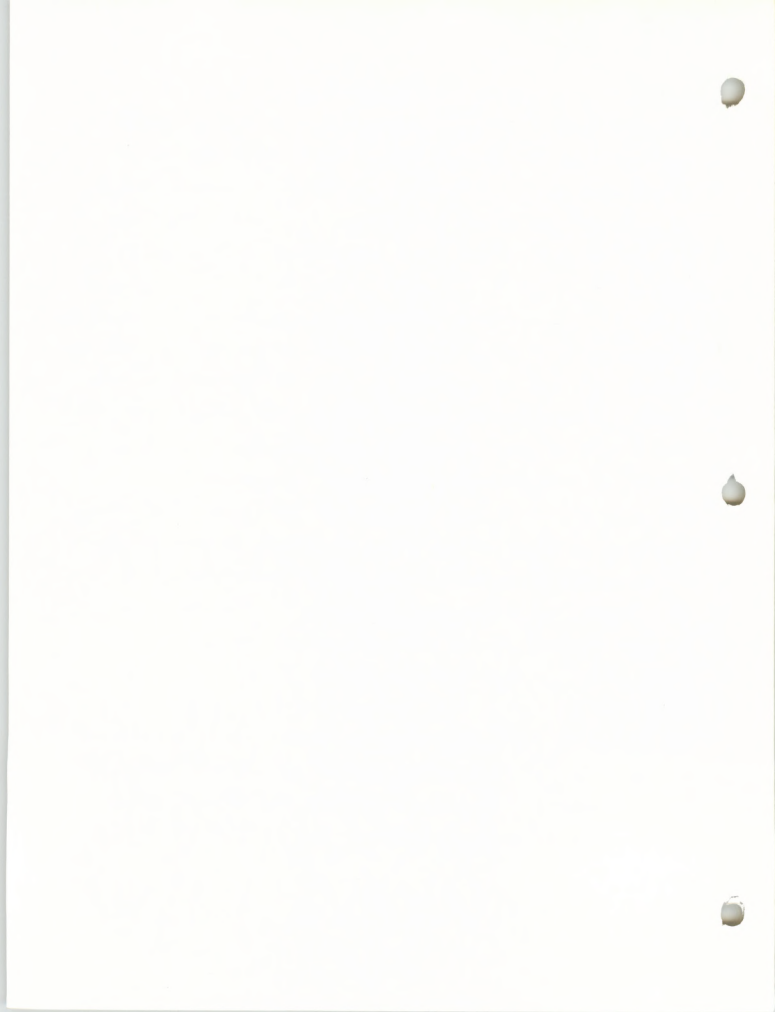


Figure 5 is Cienega Lake which is filled from pothole two (See Development Overlay). The lake was enlarged and coves excavated during fiscal year 1968. The shore line does not have desirable vegetation established, at this time, Visibility from the lake is excellent, however and the island offers adequate food and cover plant species. Fluctuating water levels, due to pump and pipeline failures, have been a perpetual problem.

Dike 2 has a water surface area of approximately four acres (See figure 6). The dike is filled from a well and pipeline located in Arizona (See Development Overlay). This dike, as well as Dike 1, were built by the Soil Conservation Service as an erosion control structure. Problems are associated with these structures. Dense vegetation consisting of tamarix, cattail, willows and trees do not allow for proper visibility from the water area in Dike 2. Soil piping is occurring along the faces of both dikes 1 and 2 thus creating water holding problems. Thus, continued maintenance is necessary on these structures. Dike one has yet to have a sustained water source into it.

In summary, food is adequate in the habitat area but is limited to the water areas and areas that are excluded from livestock grazing by fences. Cover is extremely limited as adequate cover is found only in the fenced areas around the potholes, Cienega Lake and Dike two (due to the extreme abundance of vegetation impentetratable by livestock, in some areas), and water is limited to few areas and these are not considered satisfactory as suitable waterfowl habitat, for the most part, and therefore must be considered marginal, at the present time.





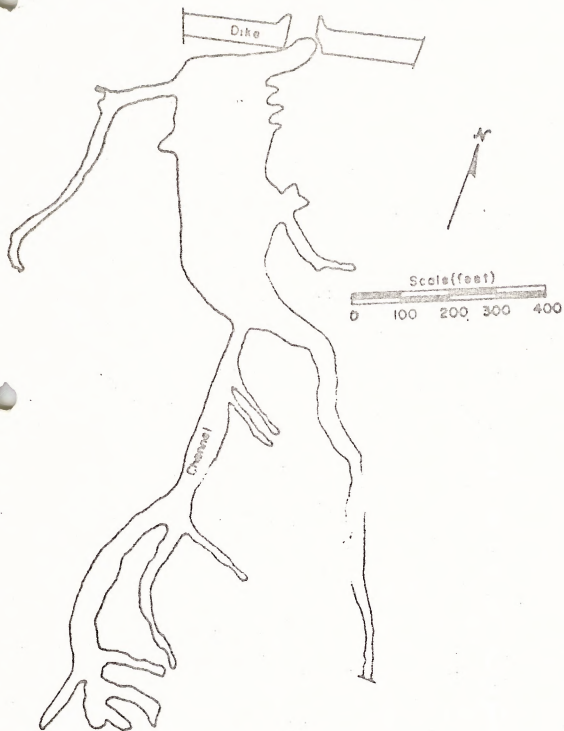


Figure 6. Dike 2.



## B. Capability for Improvement

Waterfowl habitat in the Cienega is in need of improvement and is capable of improvement. Food, cover and water can all be improved. The method by which they can be improved will be further discussed in the analysis. Generally, the following improvements solve the problems previously discussed:

Aquatic vascular plant food can be improved by increasing the number and size of water areas. Availability of desirable, terrestrial food plants can be improved by removing cattle grazing from portions of the Cienega.

Cover can be improved by planting desired cover species of plants and reseeding disturbed areas. Removal of livestock grazing from the Cienega would influence the availability of plant species for cover.

Water areas can be improved by reconstruction and maintenance of existing structures and by building addition water structures on B.L.M. lands. As addition structures are build, additional water rights must be obtained. Water areas could be improved on private lands by maintenance of constant water levels at capacity for all structures. Additional water rights should be obtained as present water rights restrict the number of water areas that can be developed.

In summary food, water and cover are capable of improvement by economizing on what is presently there and by adding what is not.

## III. Population Condition

### A. Present Condition

Figure 7 presents Mexican duck populations in the Cienega. They have increased from two pair in 1966 to a high of 47 in 1969.



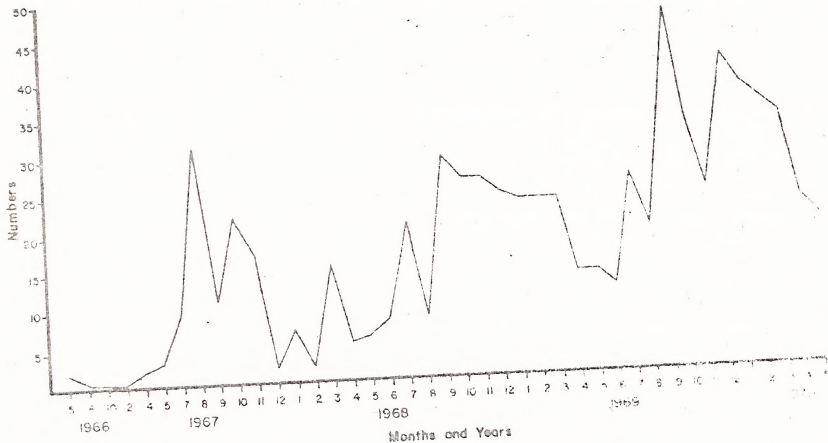
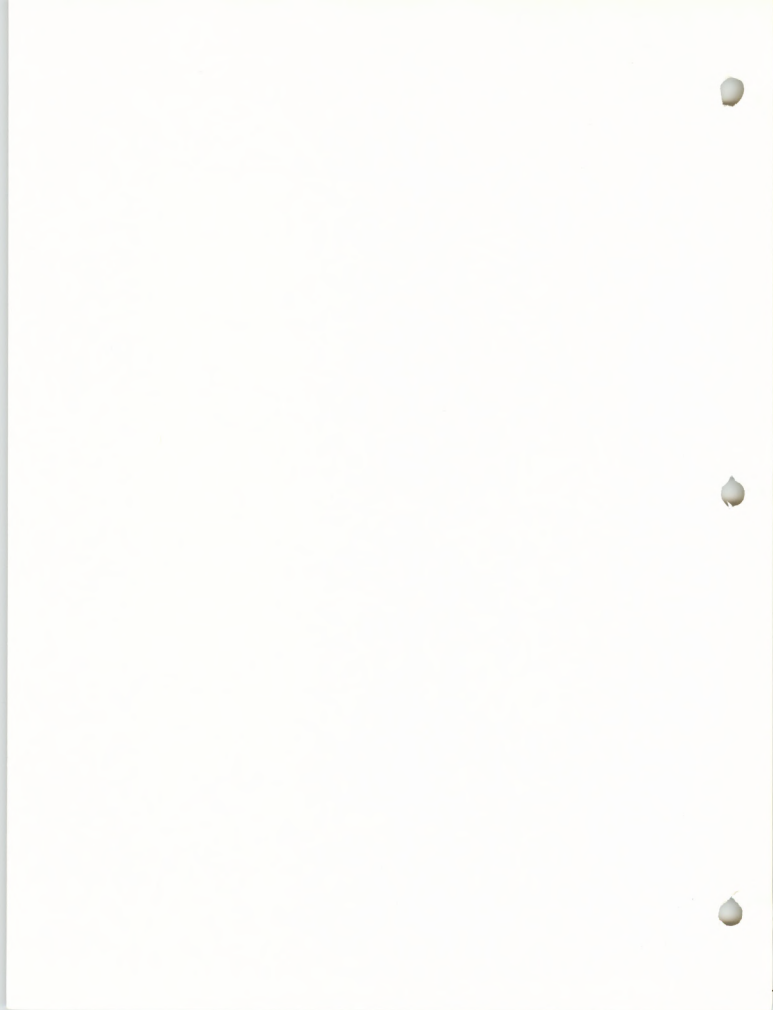


Figure 7

Mexican duck population fluctuations from May, 1966 through May, 1970, with increases resulting from releases of pen-reared birds and reproduction, and decreases resulting from mortality and emigration.



These figures include Mexican duck numbers that were released in the Cienega in 1967, 1968 and 1969. Presently (February, 1971) a population of twelve Mexican ducks are present.

As can be seen from Figure 7, the population level fluctuates in direct response to the releases of pen-reared birds and then probable, emigration from the area leaving a hypothetical, static level of ten to fifteen. This is thought to be in direct response to habitat limitations. In other words, the present habitat will support a population of 10 to 15 birds. This population response can be further tied to habitat requirements of the Mexican duck. Mexican ducks are intra-specific in relationship during the nesting season. Only a certain number, in this case 7 to 8 mated pairs, are able to successfully nest in an area due to the limited number and surface acreage of water areas (Mallards prefer to nest in densities of one pair per one to five acres. It can be assumed that the same is true of the Mexican duck). The maximum surface area of water area in the Cienega is four acres in dike two.

Nesting success is adequate in the Cienega for the number of breeding pairs present. However, large numbers of mammalian and avian predator species are present and logically have an effect on nesting success. Nesting occurs about April 1, hatching completed by July 1, and ducklings are fledged by August 15. Observations indicate that the average number of Mexican ducklings fledges per mated pair is 5.7 in the habitat area.

#### B. Potential Condition

Mexican duck numbers can be increased by providing additional water areas and associated food and cover in close proximity to these new water areas. This can be assisted by predator control to reduce





nesting predation. It is anticipated that the Cienega could possibly accomodate 30 to 50 mated pairs if the habitat is developed to its fullest extent (this would supply an annual reproduction of approximately 200 ducks).

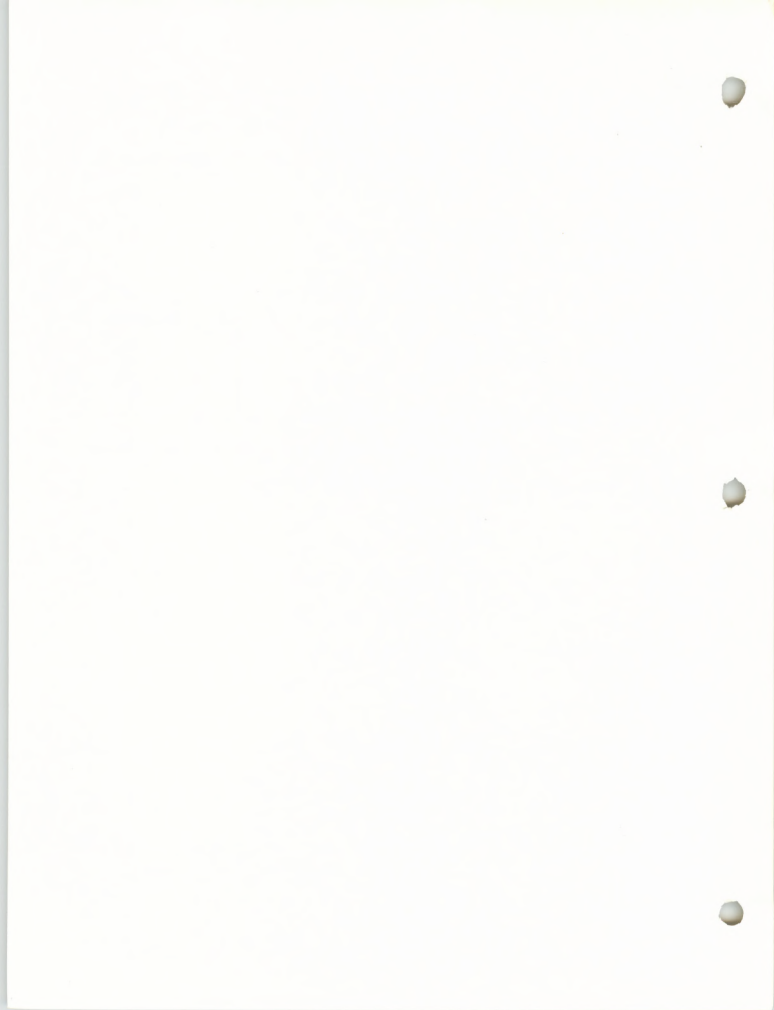
#### IV. Utilization of Wildlife

##### A. Present Situation

Mexican ducks are not hunted in the Cienega. A short season is held on bullfrogs from August 15-30. This season is necessary to control this predator of young ducklings.

##### B. Potential

It is doubtful that a sport harvest will be held on the Mexican duck in the Cienega. It is anticipated that no specific management efforts will be made to increase the sport harvest on bullfrogs.



ANALYSIS



## I. Problem Identification.

### A. Limiting Factor Related Problems.

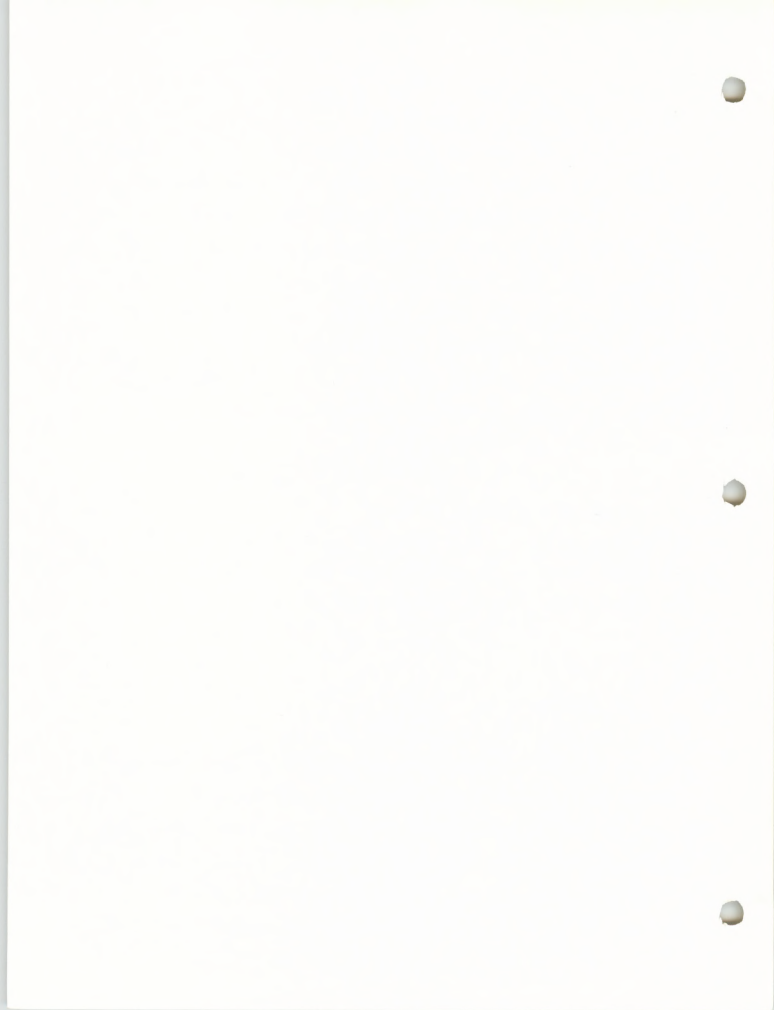
Limiting factors to the Mexican duck population in the San Simon Cienega Wildlife Habitat area are food, cover and water. Food is limited to water areas and areas fenced to exclude cattle grazing. Cover is also restricted to these same food areas with few exceptions. Water is available in few (14) areas. These water areas are small, with the average being less than three-fourths of a surface acre. At present, only 345 acre feet of water is available to the Bureau, thereby limiting the number of water areas that can be filled and water levels maintained. All of these limiting factors combined will not permit an increase in numbers of the endangered Mexican duck.

### B. Utilization Related Problems.

No problem presently exists on utilization of the Mexican duck as hunting is not permitted in the Cienega with the exception of a bullfrog season. This season is held to reduce populations of this known predator on ducklings.

## II. Problem Causes.

Food is a limiting factor due to its restricted occurrence. Aquatic vascular plant food is abundant in all permanent water areas. However, there are few water areas (14) of sufficient size (average being  $3/4$  surface acre in size) to accomodate a desirable population. Semi-aquatic and terrestrial plant food species are limited to areas not grazed by cattle (fenced areas). There are only five such areas in the Cienega and four of these have high densities of undesirable plants (sunflowers,



cattails and bulrushes). Food productivity is greatly reduced.

Cover is extremely limited due to cattle grazing. Adequate cover is found only in the fenced areas excluding cattle grazing and these areas are subject to the same conditions explained for food (invasion on high densities of undersirable plants).

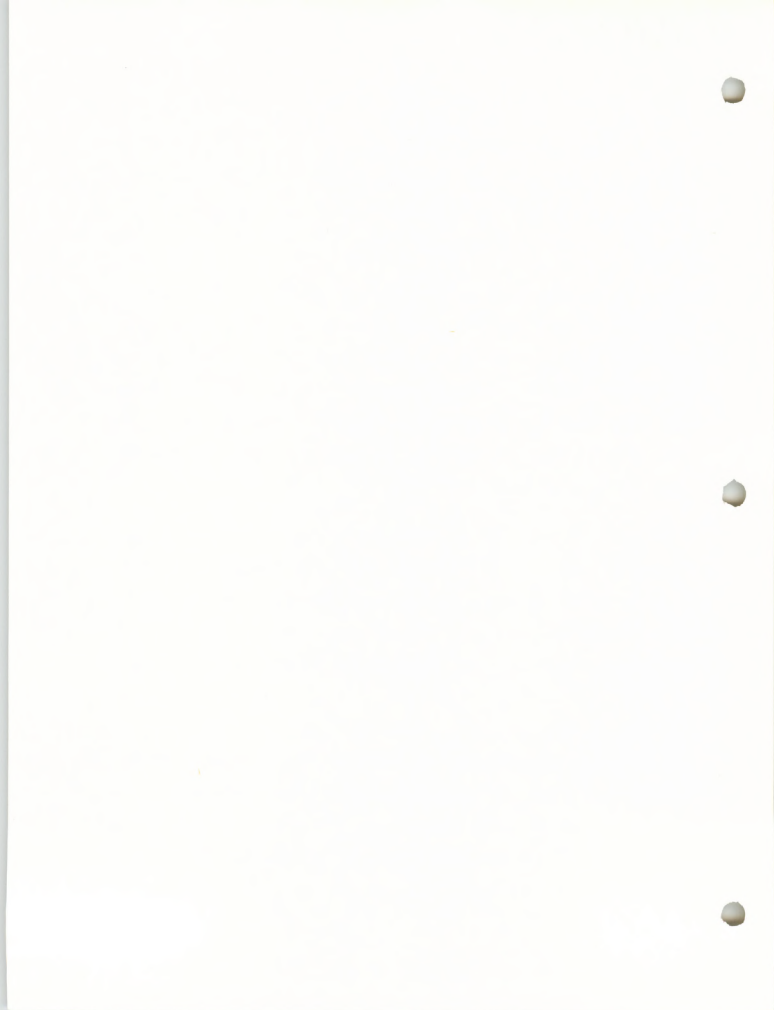
Water is a limiting factor due to the lack of adequate number of open water areas of sufficient size. Only fourteen water areas are present in the habitat area. These water areas average one-half to three-fourths surface acres and Dike 2 is approximately 4 surface acres). The Mexican duck is intraspecific in relationship during the nesting and brood raising period and therefore, only one mated pair per water area in optimum conditions can be expected.

Furthermore, the only water areas that are full and water levels constant are those managed by the B.L.M. (four potholes, Cienega Lake and Dike 2). All other (9) are primarily livestock waters and are filled only when needed. The B.L.M. water area are faced with a problem of maintaining open water due to invasion of undesirable densities of emergent vegetation.

### III. Problem Solutions.

A. Exclude or regulate livestock grazing. This will allow desired increases in emergent and terrestrial plants for food and cover.

B. Construct additional water areas. This will allow for additional aquatic vascular plant food and increase the carrying capacity of the Cienega for the Mexican duck.





C. Apply for additional water rights as needed. This will allow for an adequate amount of water to keep all developed water and existing water areas to be filled.

D. Control undesirable vegetation. This will allow increased food and cover production and increased water surface area in existing water areas.

E. Release pen-reared Mexican ducks upon completion of development projects. This will increase the present, static population.



#### IV. Management Methods.

##### A. Livestock Grazing

Present livestock grazing should be:

1. Excluded from that portion of the Cienega habitat area administered by the B.L.M. and allowed back into the area only when needed to reduce undesirable densities of vegetation.

2. Developed into a grazing system that will be compatible with the habitat requirements of the Mexican duck.

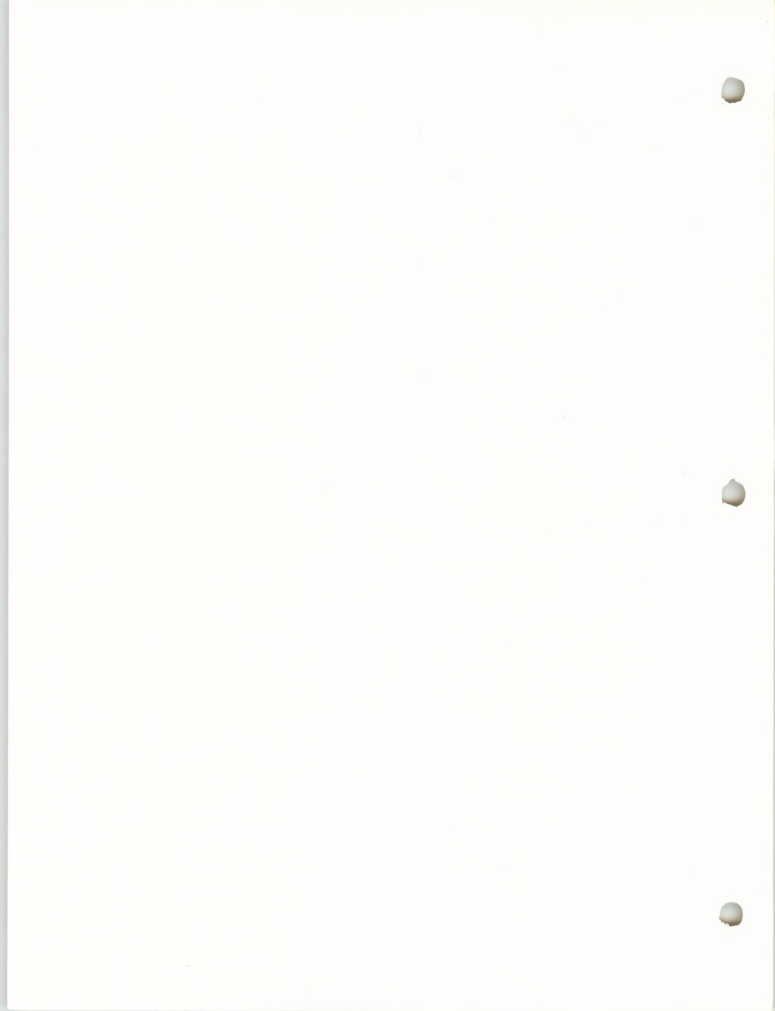
Our grazing system to be considered would be a deferred rotation system on the Cienega pastures (see development overlay). This would defer one or two pastures yearlong to allow vegetation to reach desired heights and densities.

##### B. Wildlife Population Use.

Pen-reared Mexican ducks should be released into the habitat area upon completion of all proposed development projects until a desirable breeding population is established. This population is estimated at 30 to 40 mated pairs.

A predator control program should be conducted until an adequate breeding population is reached and waterfowl habitat is developed to its potential.

The bullfrog season should be an annual event in the Cienega. This serves as a source of recreation and reduces the population of this known predator on ducklings.



The area should be closed to all human disturbance activities unless such activities are compatible with the Mexican duck habitat requirements.

C. Timber Management

Timber management is not a program in the Cienega. Cutting of trees and hauling dead wood should not be permitted unless desired in designated areas.

D. Habitat Development and/or Improvement

1. Existing Developments

Existing developments must be improved, by reconstruction or other action necessary to their optimum waterfowl habitat production level. This involves pothole reconstruction, control of undesirable vegetation, and reestablishment of food and cover vegetative species.

2. Proposed Developments (see proposed development overlay)

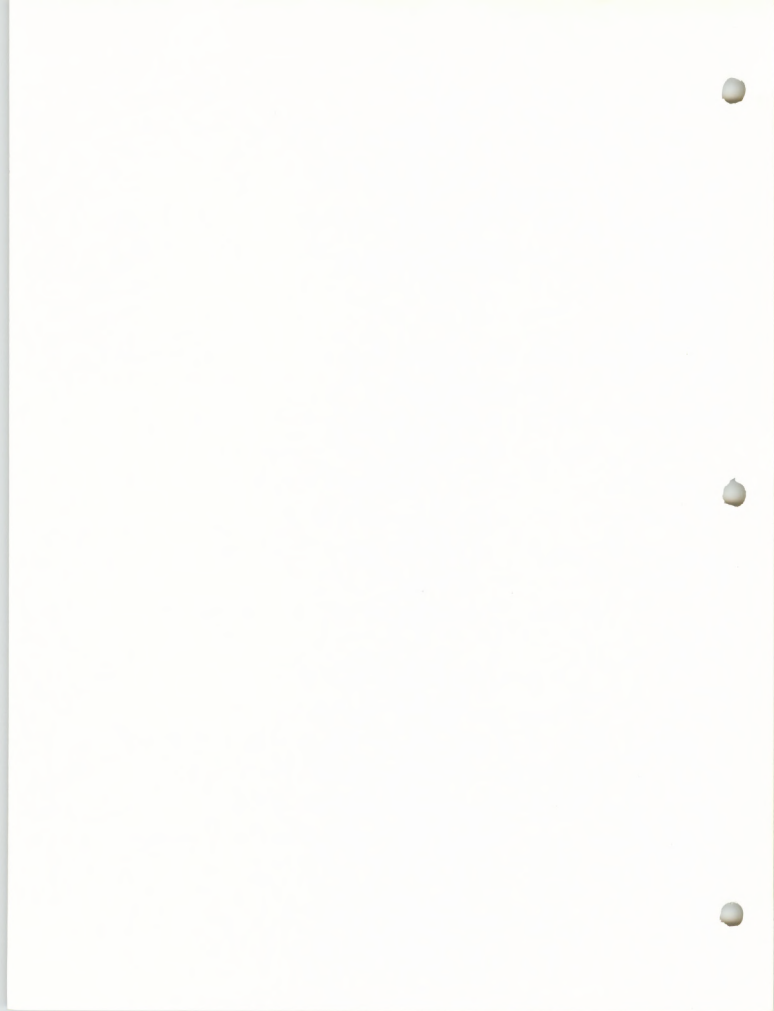
Proposed developments include:

(1) Drill of one well at the south end of the BLM administered Habitat.

(2) Construction of approximately 45 water holding structures (dikes) in the old creek drainage and along the sides where feasible throughout the Cienega on BLM lands and desired ditches and pipelines.

(3) Control of undesirable vegetation where needed.

(4) Reseeding of desirable food and cover species in areas presently denuded and areas disturbed through construction of proposed developments.



(5) Fencing where needed.

E. Access Development, Improvement and Management

Additional access development and improvement is not required.

Public access should be restricted until such time that it is feasible or compatible with the habitat of the Mexican duck.

F. Land Acquisition, Classification and Withdrawal

1. SW<sup>1</sup>/4 NE<sup>1</sup>/4, Section 12, Township 26 South, Range 22 West

This 40 acre tract is owned by the New Mexico Department of Game and Fish and exchange proceedings have been initiated by BIM. This tract contains Cienega Lake and additional habitat that will provide a water area, food and cover.

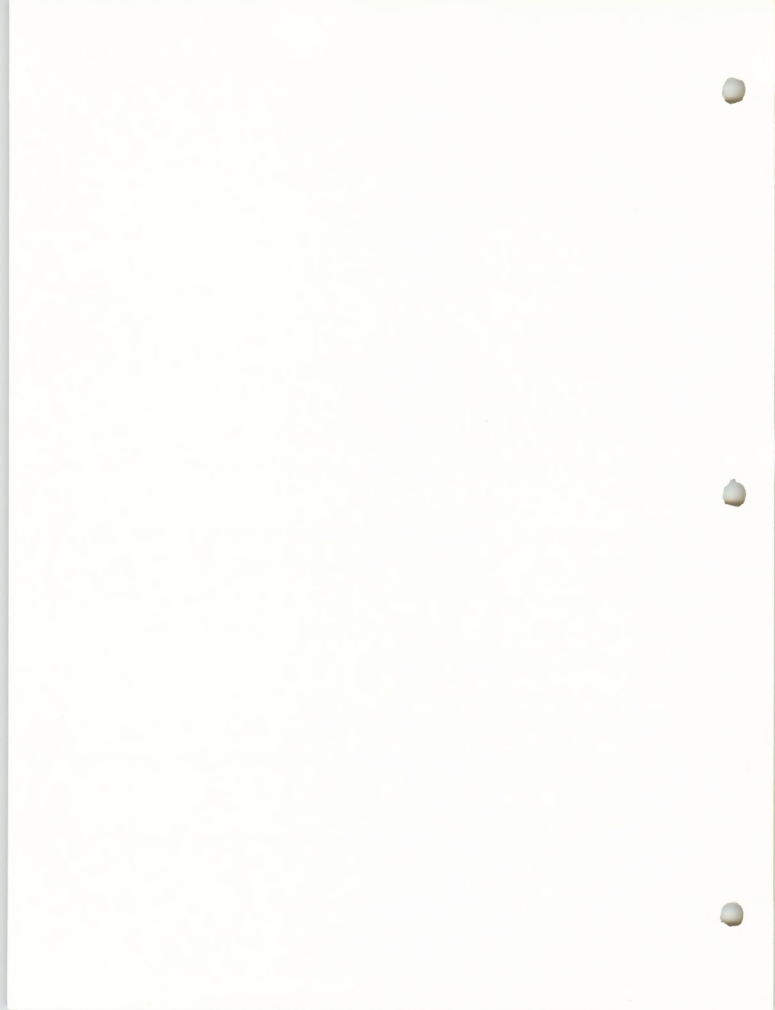
2. E<sup>1</sup>/4 NE<sup>1</sup>/4 and NE<sup>1</sup>/4 SE<sup>1</sup>/4, Section 12, Township 26 South, Range 22 West

This 120 acre tract is owned by Mae Robb of the Cienega Ranch. The area should be obtained by purchase or exchange. This tract contains habitat for the Mexican duck, both potential and existing. Additional food, cover and water could be developed on this land.

3. Other lands

Private lands owned by the Cienega Ranch border or are included on dikes one and two. These dikes are potential and existing food, cover and water areas.

Other tracts of private land should be acquired as deemed necessary.





#### G. Other

The Cienega is subject to periodic flooding. The following alternatives are available:

1. Conduct an extensive watershed protection program.
2. Maintain all developments after flooding has occurred.

#### V. Selected Methods

The above mentioned alternatives were analyzed and the following methods were selected as they affect solutions to the stated problems, are technically feasible, are within the biological capabilities of the habitat and the Mexican duck and are economically feasible:

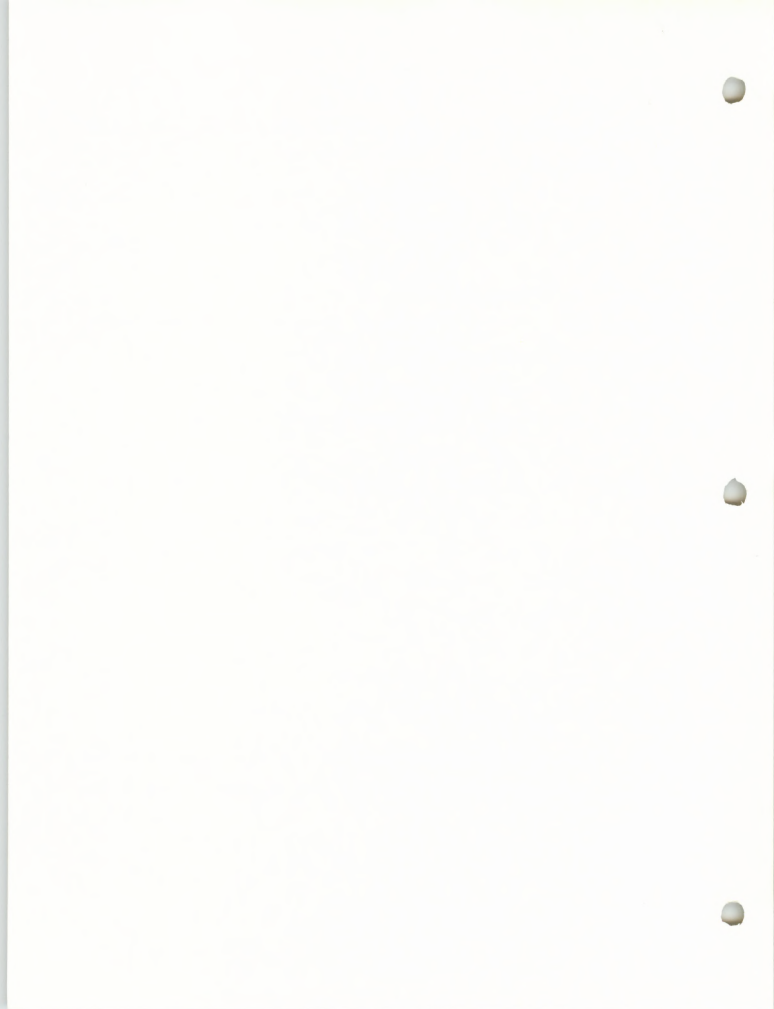
##### A. Livestock Grazing

Livestock grazing develops a rotation system of grazing. This system will employ grazing as a tool for Mexican duck habitat manipulation and still provide adequate habitat for the Mexican duck. This system will also permit the Cienega Ranch to stay in business as the Cienega is the life blood of the operation.

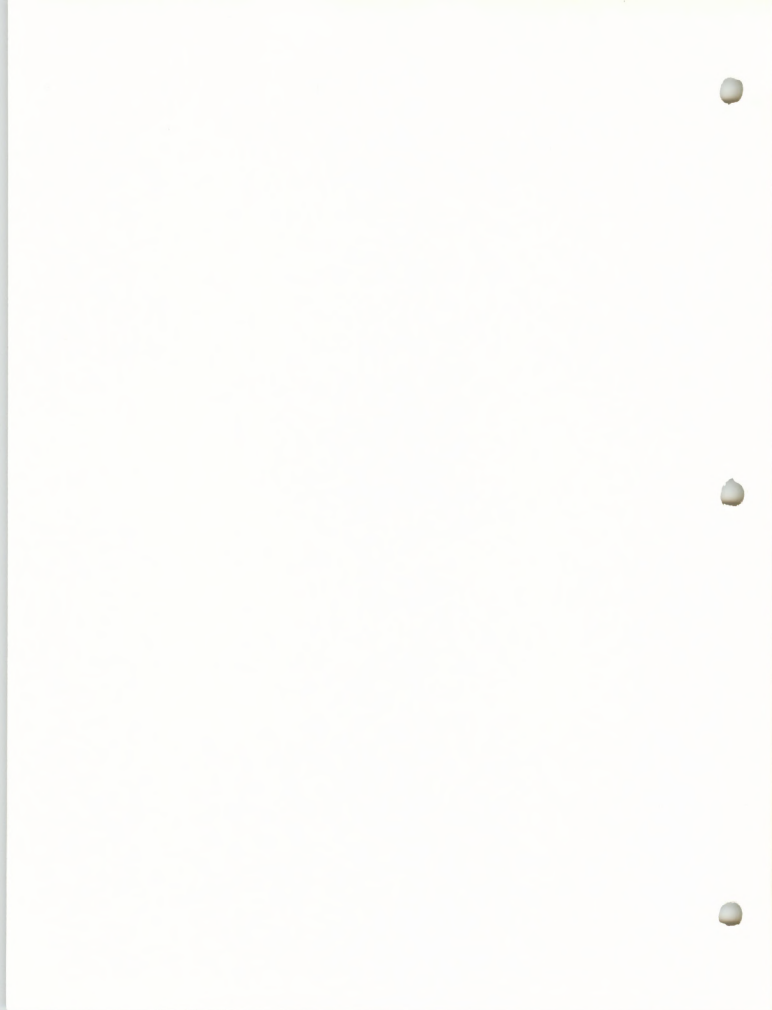
##### B. Other

Maintain all development structures after flooding. The cost of a major watershed program would far exceed cost of periodic maintenance.

All other methods prescribed were accepted as no known alternatives were stated. These methods are in complete conformance with the Mexican duck habitat.



MANAGEMENT RECOMMENDATIONS



## I. Objectives

- A. Preservation of the Endangered Mexican duck.
- B. Development of suitable waterfowl production habitat.
- C. A sustained yield of the Mexican duck population within reproductive limits of the species in an optimum nesting habitat in the Cienega.
- D. Maximum protection of Mexican duck from human disturbance.
- E. Continued study on Mexican duck to further our present knowledge of this species by district biologists.
- F. Evaluation of habitat development work.

These objectives meet the objectives expressed in Intensive Inventory and Analysis - 6612.31a,b,c,d,e,&f.

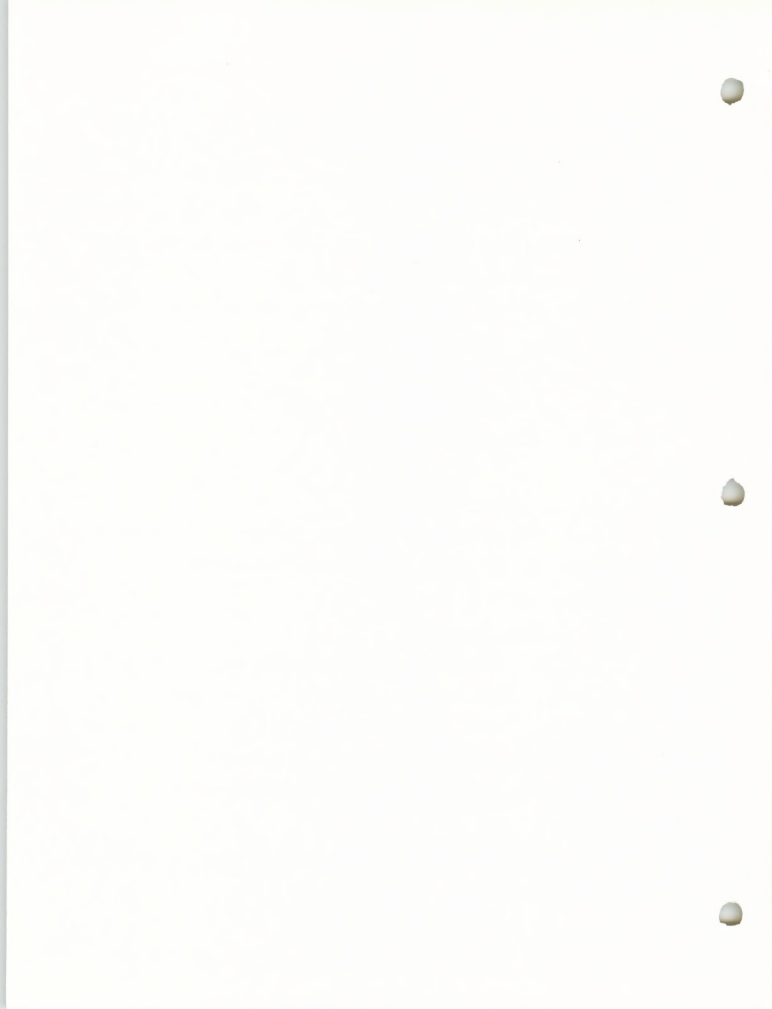
## II. Methods

### A. Livestock Grazing

Develop a rotation system of grazing. This system will provide a tool for waterfowl habitat manipulation by controlling undesirable vegetative growth.

### B. Wildlife Population Use

1. Pen-reared Mexican duck should be released into the Cienega habitat area until a suitable breeding population is established.
2. Preadator control should be conducted in the habitat areas until optimum habitat requirements are met or when deemed unnecessary.
3. The bullfrog season should be continued each year or until conflicts arise.
4. The habitat area should be closed to all forms of hunting unless otherwise deemed necessary.



#### C. Timber Management

Timber management is not a program in the Cienega. Cutting of trees and hauling of deadwood should not be permitted unless deemed necessary.

#### D. Habitat Development and/or Improvement

Habitat improvement is necessary on all existing structures. This will be accomplished by pothole reconstruction, control of undesirable vegetation and food and cover vegetation seed. Development work (see proposed development overlay) will consist of well drilling, construction of 45 dikes in the existing dry creek drainage and on the adjacent areas where feasible, construction of ditches and pipelines, fencing where needed, reseeding of all disturbed and bare areas, and chemical control of undesirable weeds.

#### E. Access

Access is considered satisfactory.

#### F. Land Acquisition, Classification and Withdrawal

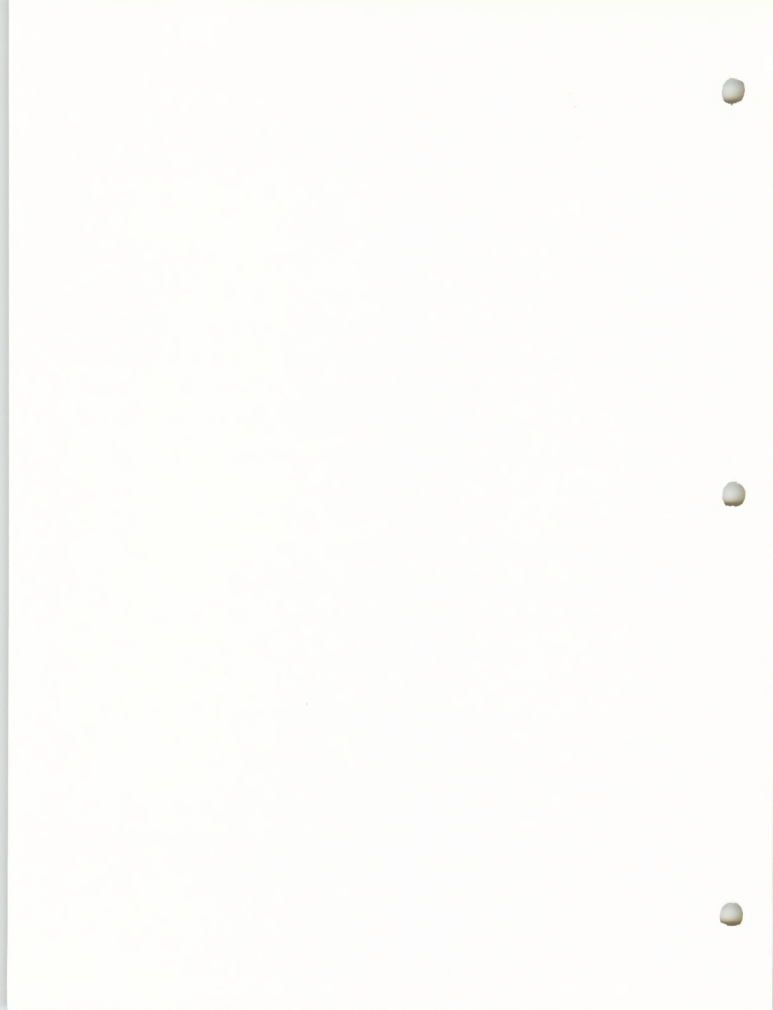
Those lands previously described under .24b of the manual should be acquired for the stated reason.

#### G. Other

All structures should be maintained after a flood in lieu of an extensive watershed program.

### III. Implementation Sequence

Immediate restoration of the San Simon Cienega must be initiated. Failure to do so will likely result in loss of the Mexican duck and the Cienega is one of the few remaining Mexican duck habitat areas in the

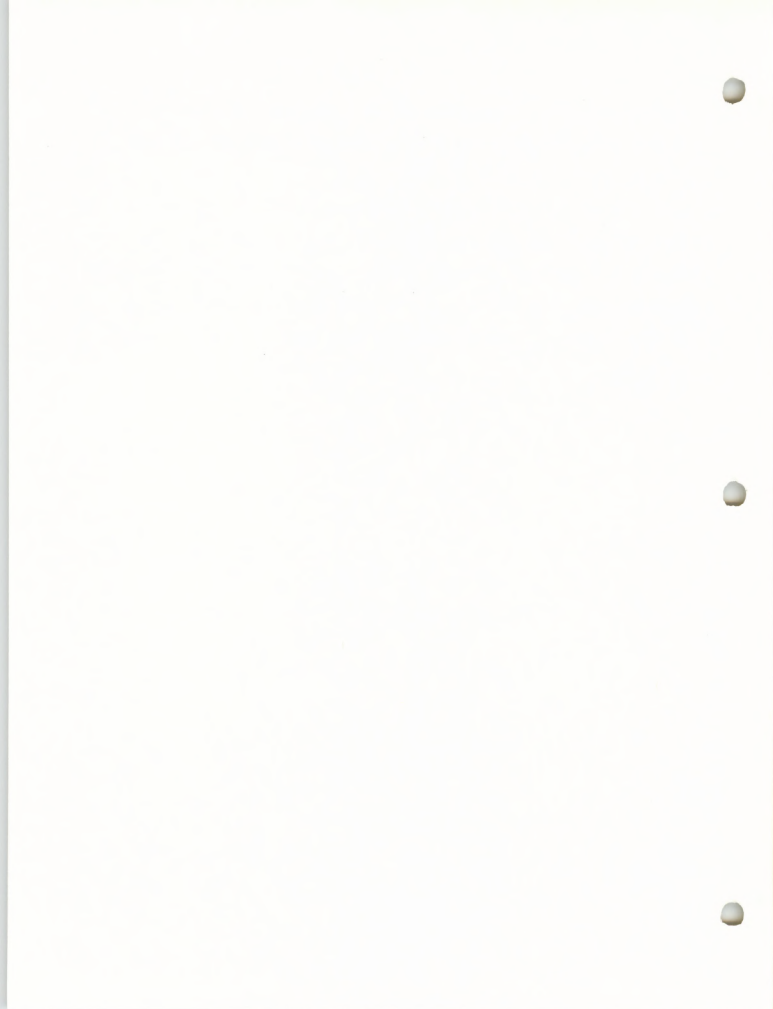




United States. Due to changing land use through water diversion and drainage projects, Mexican duck populations are declining in both the United States and Mexico.

It is anticipated that negligible impacts will be made on other programs in the area with the exception of livestock grazing. This loss will be offset by development work to provide additional livestock forage in the Cienega as submitted in the Mexican duck program package.

The following is the proposed, tentative management implementation schedule:



Implementation ScheduleBudget Year FY 71

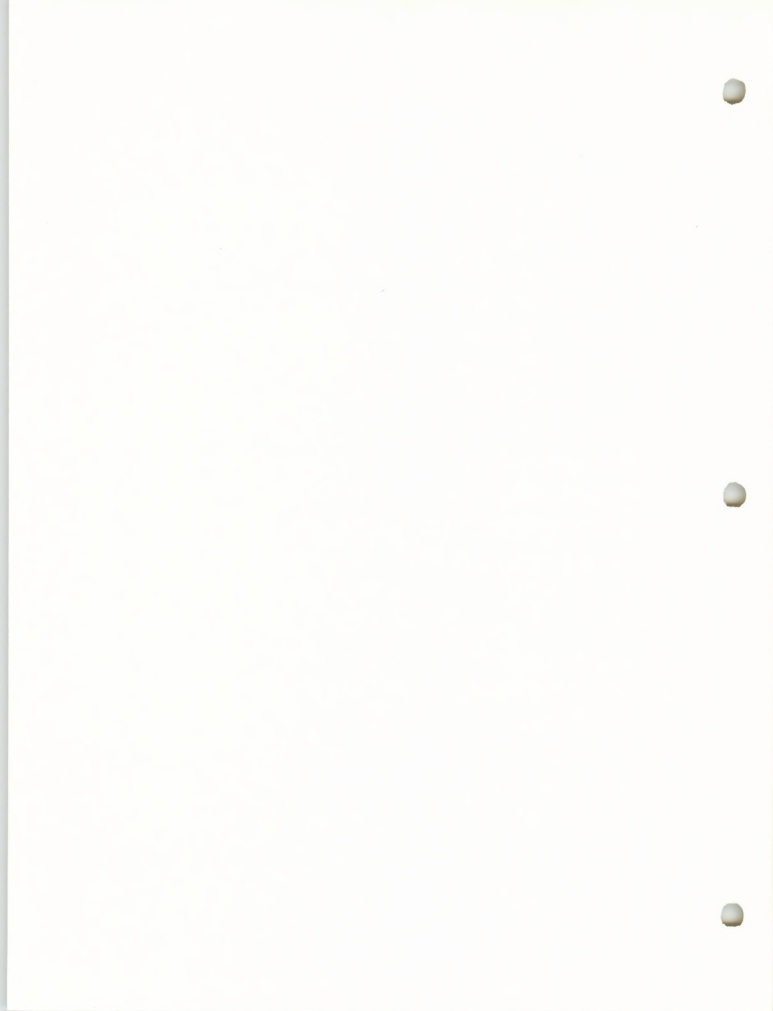
1. Drill and Equip Well
2. Reconstruction on Potholes 1 and 2
3. Chemical control of undesirable vegetation
4. Construction of 1 dike with dirt excavated from potholes
5. Maintenance of existing structures
6. Reseeding of disturbed areas

Program Year FY 72

1. Reconstruction of potholes 3 and 4
2. Construction of fences and removal of old fence lines
3. Construction of dikes and ditches
4. Chemical control of undesirable vegetation
5. Reseed disturbed areas
6. Maintenance of existing structures
7. Evaluation studies.

Program Year +1 FY 73

1. Construction of new dikes and ditches
2. Drill well and equip
3. Reseed disturbed areas
4. Chemical control of undesirable vegetation
5. Maintenance
6. Evaluation studies



Program Year +2 FY 74

1. Evaluation studies
2. Establish food and cover Reseeding
3. Maintenance

Program Year +3 FY 75

1. Evaluation Studies
2. Maintenance
3. Establish food and cover - reseeding

Program Year +4 FY 76

1. Evaluation studies
2. Food and cover establishment - reseeding
3. Maintenance
4. Construction of visitor facilities and recreation related facilities.

After FY 76, maintenance funds will be programmed annually.



#### IV. Evaluation

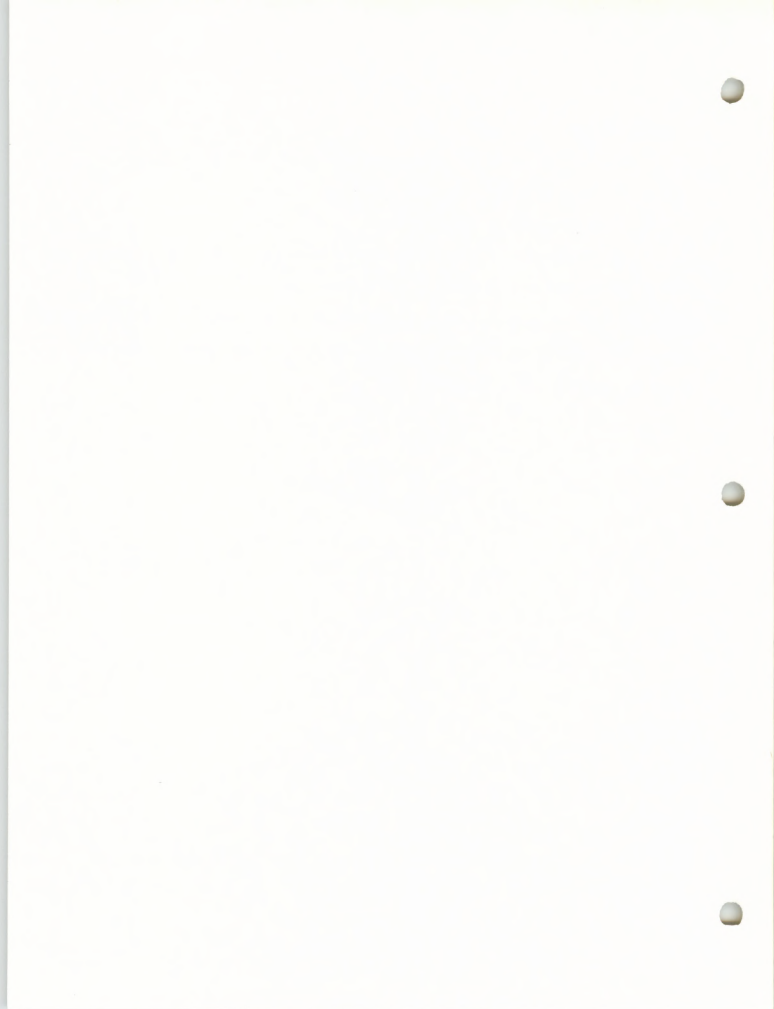
Annual evaluation studies will be conducted on the Cienega.

General objectives of the studies will be:

1. Determine nesting success.
2. Vegetative transects to determine changes in density and composition.
3. Determine if objectives are being met.

Specific details will be included in the HMP when development work is initiated.

Annual studies will be made to determine productivity and habitat conditions until an evaluation plan is specified.





SAN SIMON CIENEGA  
WILDLIFE HABITAT MANAGEMENT PLAN  
NM-3 WHA-T2

DECEMBER 1970  
LAS CRUCES DISTRICT OFFICE  
NEW MEXICO



LAS CRUCES DISTRICT

DECEMBER 1970

SAN SIMON CIENEGA WILDLIFE HABITAT AREA

I. INTRODUCTION.

THE SAN SIMON CIENEGA WILDLIFE HABITAT AREA (HEREAFTER REFERRED TO AS THE CIENEGA) PROVIDES HABITAT FOR A VARIETY OF WATERFOWL SPECIES (INCLUDING THE MEXICAN DUCK), MULE DEER, MOURNING DOVE, GAMBEL'S QUAIL, SCALED QUAIL, NUMEROUS NON-GAME BIRD SPECIES, PREDATORS, AND SMALL MAMMALS.

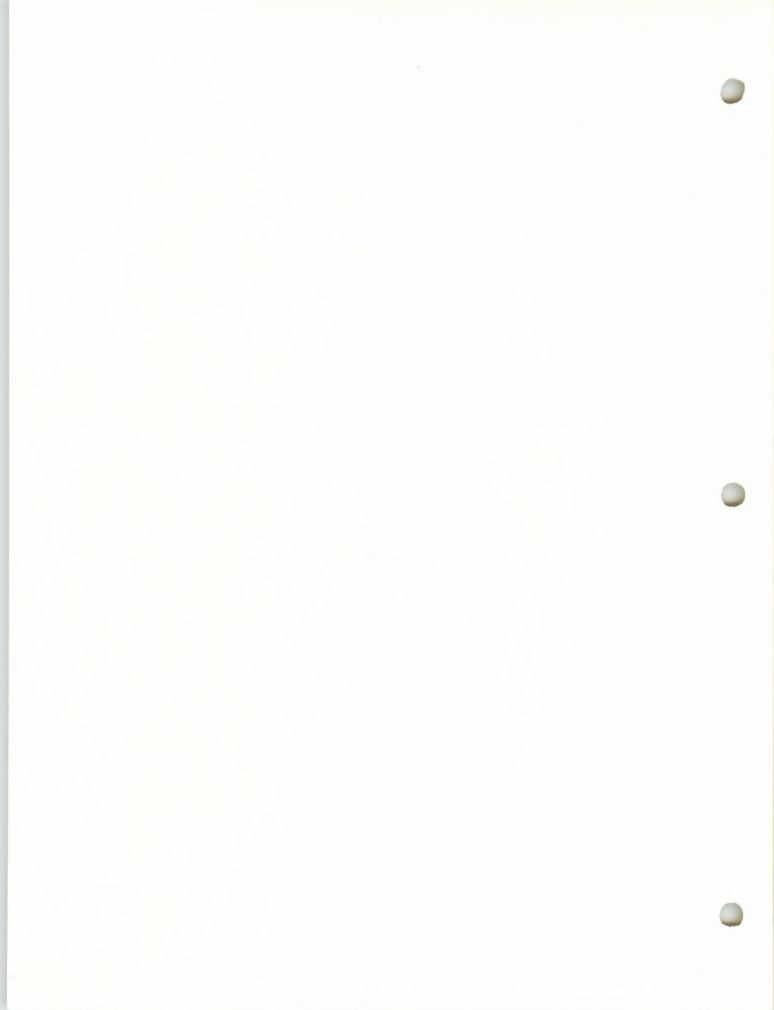
THE MEXICAN DUCK (*ANAS diazi*) IS THE SPECIES RECEIVING CONSIDERATION IN THIS PLAN DUE TO ITS ENDANGERED STATUS AND TO THE U. S. DEPARTMENT OF INTERIOR'S RESPONSIBILITY TO PRESERVE ALL RARE AND ENDANGERED SPECIES OF WILDLIFE (SEE APPENDIX FOR MEMORANDUMS AND POLICY STATEMENTS).

OTHER WILDLIFE SPECIES PRESENT IN THE CIENEGA WILL BE INCORPORATED INTO THE PLAN AT A LATER DATE. MANAGEMENT FOR THE MEXICAN DUCK WILL BE EMPLOYED ONLY AFTER CAREFUL CONSIDERATION OF THESE "OTHER" SPECIES.

A. DESCRIPTION OF AREA.

THE SAN SIMON CIENEGA IS LOCATED IN SOUTHWEST NEW MEXICO AND EXTENDS INTO ARIZONA (SEE FIGURE 1-LOCATION MAP). THE CIENEGA IS IN THE LOWER SONORAN LIFE ZONE (ELEVATION 3,400 FEET). THE HABITAT AREA IS APPROXIMATELY FOUR AND ONE-HALF MILES LONG AND ONE-HALF MILE WIDE AND IS CONSIDERED TO BE A CRITICAL "WETLAND" HABITAT FOR THE MEXICAN DUCK (SEE BASE MAP. LOCATED IN DISTRICT OFFICE).

THE SAN SIMON CIENEGA WAS A TRUE CIENEGA (MARSH) UNTIL 1952. AT THIS TIME, THE SMALL PERENNIAL STREAM STOPPED FLOWING DURING THE



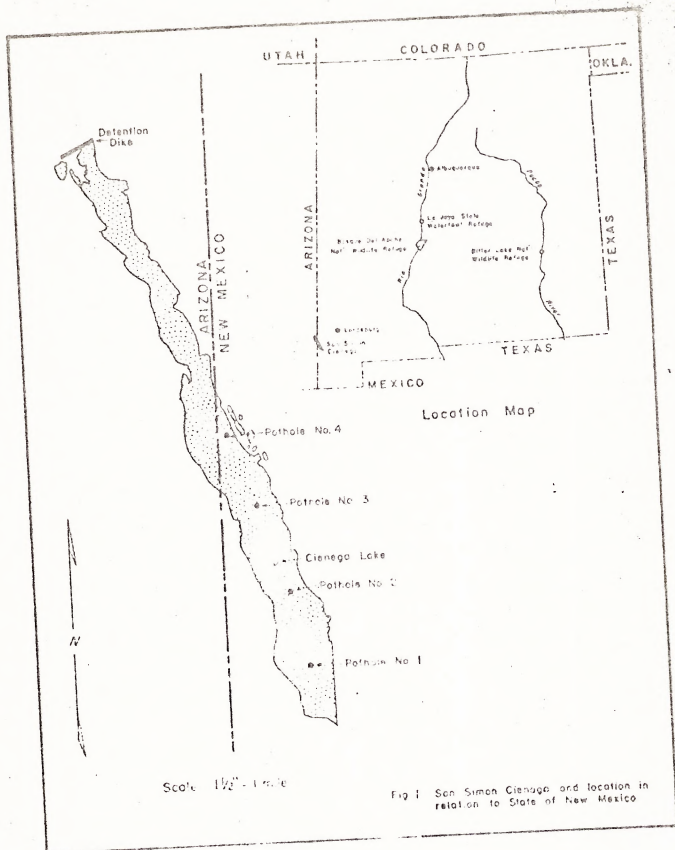
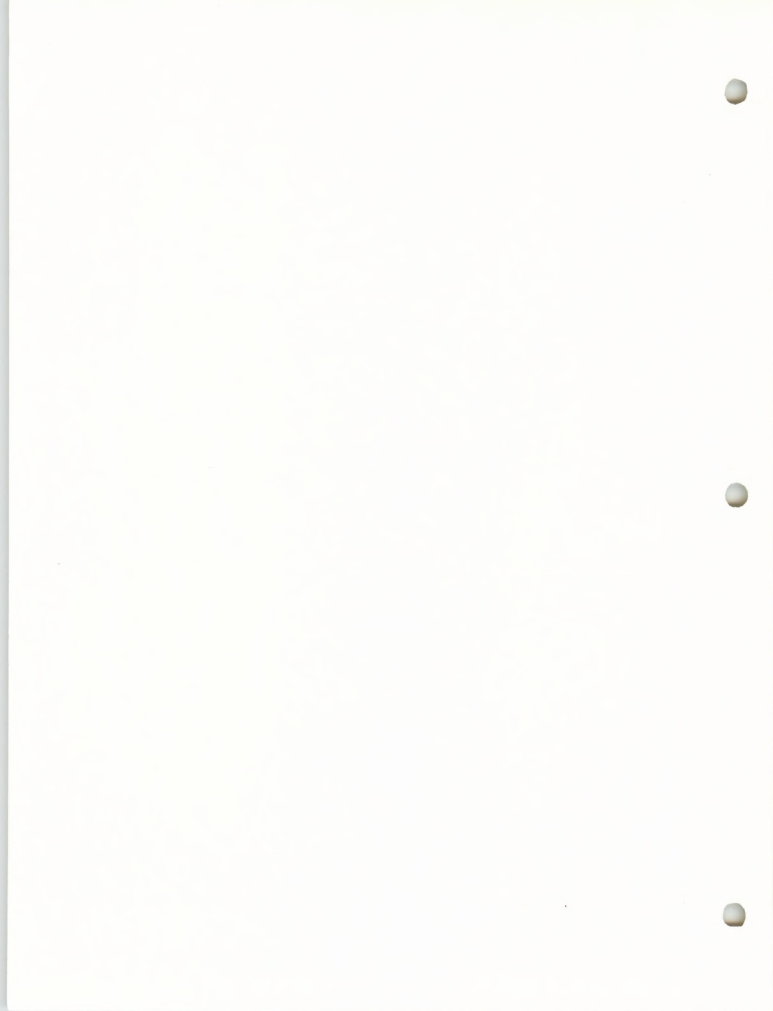


Fig 1 San Simon Glenage and location in relation to State of New Mexico



SUMMER MONTHS. SINCE 1952, IRRIGATION OF INCREASING ACREAGES OF AGRICULTURAL LANDS HAS LOWERED THE WATER TABLE TO A POINT WHERE ONLY A FEW SCATTERED HOLES OR BOGS CONTAIN "NATURAL" WATER PERIODICALLY DURING AVERAGE YEARS. THE ONLY CONSISTENTLY AVAILABLE WATER IS PROVIDED BY WELLS.

THE CIENEGA CONTAINS BOTH PRIVATE OWNED AND FEDERAL ADMINISTERED LANDS (APPROXIMATELY 1,500 ACRES, IN THE CIENEGA PROPER, SEE STATUS MAP IN THE APPENDIX). THE PUBLIC LANDS ARE UNDER THE ADMINISTRATION OF THE LAS CRUCES DISTRICT OFFICE, BUREAU OF LAND MANAGEMENT.

THE ADMINISTRATIVE RESPONSIBILITIES ARE DEFINED BY INTERDISTRICT AGREEMENT OF JANUARY 26, 1971.

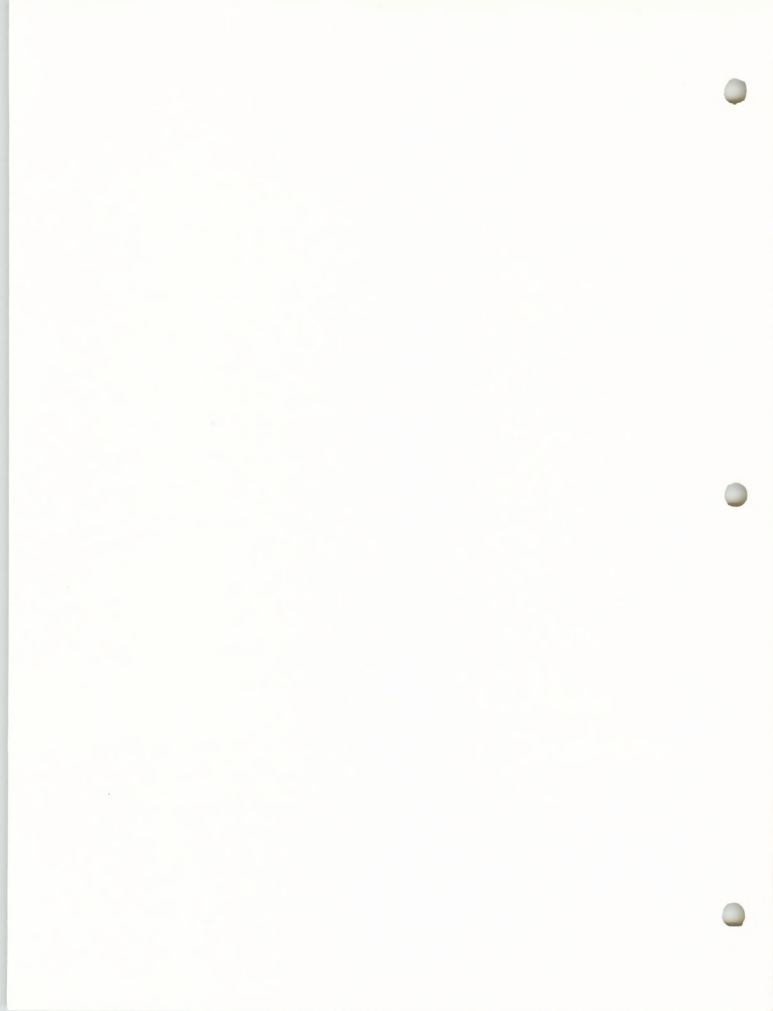
ADMINISTRATIVE RESPONSIBILITIES FOR THE CIENEGA ARE DEFINED AS FOLLOWS:

1. LAS CRUCES DISTRICT ADMINISTERS ALL USES IN BOTH ARIZONA AND NEW MEXICO. LAND CASES WILL BE COORDINATED WITH THE ARIZONA STATE OFFICE.
2. THE LORDSBURG AREA MANAGER IS DESIGNATED AS THE COORDINATOR FOR ALL PROGRAMS IN THE CIENEGA.

THIS PLAN IS DEVELOPED BY THE LAS CRUCES DISTRICT OFFICE.

#### B. RESEARCH

NEW MEXICO STATE UNIVERSITY WAS CONTRACTED TO CONDUCT A RESEARCH PROGRAM ON THE CIENEGA FROM JULY 1, 1966 THROUGH JUNE 30, 1970 ENTITLED "EFFECTS OF RESTORATION AND MANAGEMENT OF THE SAN SIMON MARSH ON ITS UTILIZATION BY MEXICAN DUCKS," BUREAU OF LAND MANAGEMENT CONTRACT NO. 14-11-0003-2839. THE PROJECT LEADER WAS DR. CHARLES A. DAVIS AND RESEARCH ASSISTANTS WERE VERNON W. BEVILL AND JERRY SINTZ. RESULTS OF THIS STUDY HAVE BEEN PUBLISHED (COPIES AVAILABLE IN DISTRICT OFFICE). A FOLLOW-UP STUDY (TO COMPLETE THE AMOUNT OF TIME CONTRACTED) WAS CONDUCTED BY A. D. PACK, JULY 1 THROUGH AUGUST 11, 1970. A REPORT ENTITLED "A REPORT ON THE HABITAT REQUIREMENTS





OF THE MEXICAN DUCK (ANAS DIAZI) IN THE SAN SIMON CIENEGA STUDY AREA" WAS PUBLISHED AND IS ALSO IN THE DISTRICT OFFICE .

RESULTS OF THESE STUDIES ARE INCORPORATED INTO THIS PLAN.

C. PREVIOUS PLANS AND PERTINENT INFORMATION.

PLANS AND RECOMMENDATIONS PREVIOUSLY COMPLETED ARE SUPERCEDED BY THIS PLAN. THIS PLAN INCLUDES PERTINENT INFORMATION DERIVED FROM THESE PLANS. ALL PREVIOUS PLANS ARE ON FILE IN THE DISTRICT OFFICES.

D. MEXICAN DUCK PROGRAM PACKAGE.

A SAN SIMON CIENEGA MEXICAN DUCK PROGRAM PACKAGE (PACKAGE IDENTIFICATION NO. 30-71-71-05) WAS JOINTLY SUBMITTED JANUARY 31, 1969 BY ARIZONA AND NEW MEXICO. THE PROGRAM PACKAGE WAS UPDATED BY JANUARY 7, 1971, SUBMISSION. BOTH ARE ON FILE IN APPROPRIATE STATE AND DISTRICT OFFICES.

E. MANAGEMENT FRAMEWORK PLAN.

MANAGEMENT FRAMEWORK PLAN DIRECTION IS AVAILABLE FOR THE CIENEGA (SEE GILA P.U. 3-01 M.F.P.). THIS PLAN IS BEING PREPARED WITH CAREFUL CONSIDERATION OF OTHER USES ON THE CIENEGA.

AS PREVIOUSLY STATED THIS PLAN IS A PARTIAL FULFILLMENT TO THE U. S. DEPARTMENT OF INTERIOR'S ROLE IN PRESERVING AN ENDANGERED SPECIES, THE MEXICAN DUCK. ADDITIONAL EMPHASIS WILL BE PLACED ON "OTHER" WILDLIFE SPECIES AS SOON AS PRACTICABLE.



2. MANAGEMENT OBJECTIVES

- A. PRESERVATION OF THE ENDANGERED MEXICAN DUCK.
- B. DEVELOPMENT OF SUITABLE WATERFOWL PRODUCTION HABITAT.
- C. A SUSTAINED YIELD OF THE MEXICAN DUCK POPULATION WITHIN REPRODUCTIVE LIMITS OF THE SPECIES IN AN OPTIMUM NESTING HABITAT IN THE CIENEGA.
- D. MAXIMUM PROTECTION OF MEXICAN DUCK FROM HUMAN DISTURBANCE.
- E. CONTINUED STUDY ON MEXICAN DUCK TO FURTHER OUR PRESENT KNOWLEDGE OF THIS SPECIES BY DISTRICT BIOLOGISTS.
- F. EVALUATION OF HABITAT DEVELOPMENT WORK.

3. MANAGEMENT METHODS

A. LIVESTOCK GRAZING.

LIVESTOCK GRAZING IS IN DIRECT CONFLICT WITH MEXICAN DUCK NESTING IN THE CIENEGA. ADEQUATE COVER IS NOT AVAILABLE DURING THE NESTING AND BROOD-RAISING PERIOD DUE TO THE REMOVAL OF GRASS SPECIES DESIREABLE FOR COVER BY GRAZING.

THE MEXICAN DUCK BEGINS NESTING ABOUT APRIL 1 AND HATCHING OCCURS FROM MAY 9 THROUGH JULY 4. AFTER HATCHING, A PERIOD OF 6 WEEKS (THROUGH AUGUST 15) IS REQUIRED TO RAISE THE BROODS TO FLIGHT STAGE. DURING THIS PERIOD (APRIL 1 - AUGUST 15), ADEQUATE COVER IS IMPERATIVE.

THE PRESENT RANCH MANAGEMENT INFORMATION IS INCLUDED IN THE "LIVESTOCK MANAGEMENT RECOMMENDATION - CIENEGA RANCH", SAFFORD AND LAS CRUCES DISTRICTS, JULY, 1969 (COPY LOCATED IN DISTRICT FILES). IT IS APPARENT THAT THE NORTH AND SOUTH PASTURES ARE AN INTEGRAL PART OF THE CIENEGA RANCH'S OPERATION. INVENTORY INFORMATION AND RESEARCH FINDINGS (BEVILL, 1970) REVEAL THAT PASTURES #1 (NORTH) AND #2 (SOUTH) AND THE POISON PATCH ARE THE BEST POTENTIAL HABITAT AREAS IN THE CIENEGA. (SEE BASE MAP AND OVERLAY IN APPENDIX).

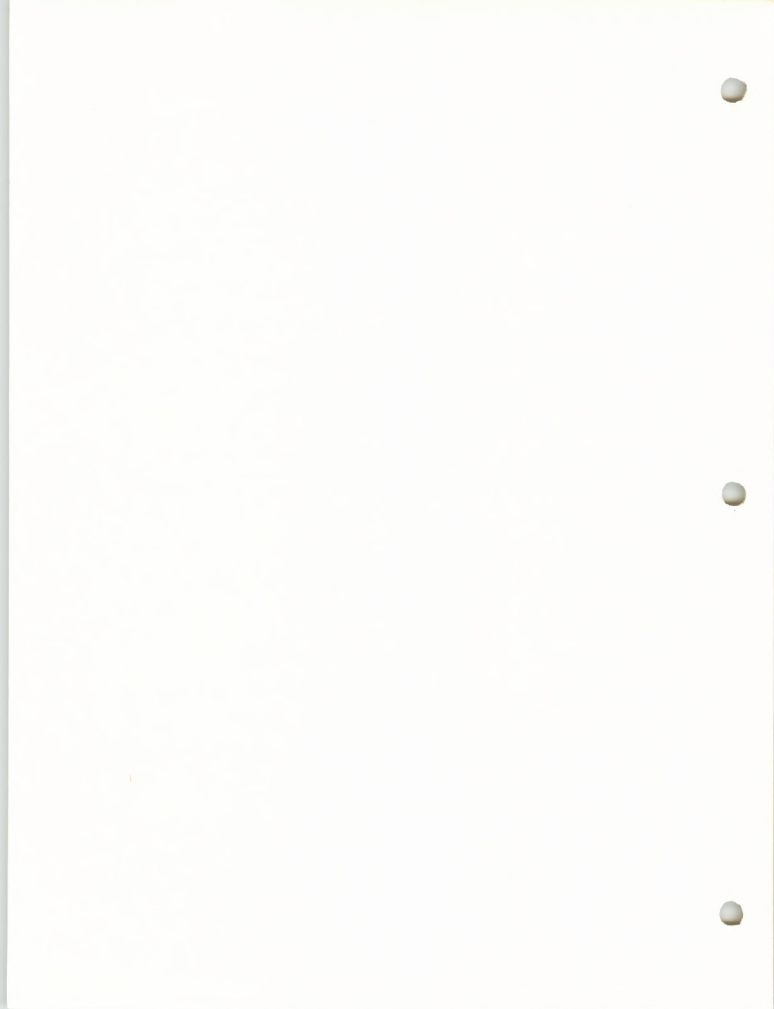


LACK OF ADEQUATE NESTING COVER ON PRIVATE LANDS OWNED BY THE CIENEGA RANCH (SOUTH OF PASTURE 1) ALSO RESULTS FROM CATTLE GRAZING. THUS ADEQUATE COVER FOR NESTING IS ESSENTIALLY NON-EXISTENT OVER THE ENTIRE CIENEGA. LIVESTOCK GRAZING CAN BE USED AS A TOOL FOR HABITAT MANAGEMENT FOR THE MEXICAN DUCK. WITHOUT GRAZING THE DENSITY OF GRASSES INCREASED TO A POINT WHERE IT IMPAIRS PASSAGE OF BROODS AND MAY PROHIBIT NESTING. THEREFORE, A GOOD GRAZING SYSTEM CAN BE AN INTEGRAL PART OF THIS PLAN.

FOR LIVESTOCK GRAZING TO BE INCORPORATED IN THIS PLAN, IT IS ESSENTIAL THAT A PORTION (OR PASTURE(S)) SHOULD BE RESTED FROM AUGUST 15 TO AUGUST 14 (YEARLONG). (SEE OVERLAY IN APPENDIX). SUCH A REST PERIOD WILL ALLOW SUFFICIENT GROWTH OF ALL GRASSES TO DESIRABLE HEIGHTS AND DENSITY FOR GOOD NESTING AND BROOD RAISING COVER. (NO SPECIFIC HEIGHT IS RECOMMENDED AS CERTAIN GRASS SPECIES (SALTGRASSES) WILL NOT GROW TO PREVIOUSLY RECOMMENDED HEIGHTS. NON-PALATABLE SPECIES (ALKALI SAGE, ETC.) PROVIDE ADEQUATE HEIGHT, HOWEVER DURING A NORMAL GRAZING YEAR THESE ARE THE ONLY SPECIES OF SUFFICIENT HEIGHT. OTHER SPECIES PRESENT SHOULD BE OF SUFFICIENT HEIGHT AND DENSITY TO PROVIDE PASSAGE OR ESCAPE COVER FOR BROODS TO WATER AREAS).

TO PROVIDE OPTIMUM WATERFOWL PRODUCTION IN THE CIENEGA, IT WOULD NECESSITATE COMPLETE REST OF THE ENTIRE CIENEGA WITH GRAZING ALLOWED ONLY IN AREAS WHERE GRASS DENSITY IS TOO GREAT. IN OTHER WORDS, LIVESTOCK GRAZING WOULD BE USED AS A TOOL FOR MEXICAN DUCK HABITAT MANAGEMENT WITH NO REGARD TO THE LIVESTOCK OPERATOR'S WELFARE.

A MULTIPLE USE APPROACH TO THE CIENEGA WOULD INCORPORATE A PASTURE MANAGEMENT SYSTEM THAT WOULD ALLOW YEARLONG REST OF 1 OR 2 PASTURES. (SEE DEVELOPMENT OVERLAY AND LIVESTOCK DEVELOPMENT OVERLAY IN THE APPENDIX FOR POSSIBLE PASTURE FENCING.)



## B. TIMBER MANAGEMENT.

TIMBER MANAGEMENT IS NOT A PROGRAM IN THE CIENEGA.

CUTTING OF TREES AND HAULING OF DEAD WOOD SHOULD NOT BE PERMITTED UNLESS DESIRED IN DESIGNATED AREAS.

## C. WILDLIFE USE

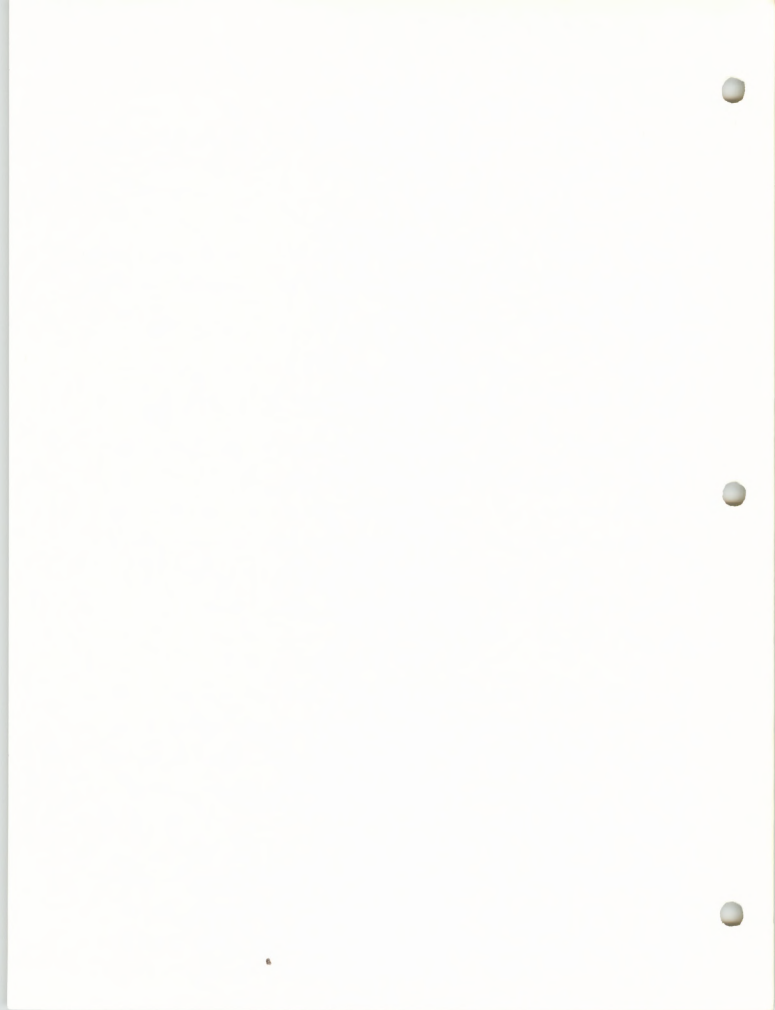
HUNTING OF WILDLIFE SPECIES IS DISCOURAGED IN THE CIENEGA BY BLOCKING THE MAJOR ACCESS ROAD WITH THE EXCEPTION OF A BULLFROG SEASON FROM AUGUST 15-31 IN NEW MEXICO.

WATERFOWL HUNTING SEASON WAS CLOSED BY THE ARIZONA AND NEW MEXICO GAME AND FISH DEPARTMENTS TO ENSURE PROTECTION OF THE MEXICAN DUCK.

THE NEW MEXICO DEPARTMENT OF GAME AND FISH DESIGNATED 200 ACRES LOCATED IN  $W\frac{1}{2}$  E $\frac{1}{4}$ , SE $\frac{1}{4}$  SE $\frac{1}{4}$ , SECTION 12, TOWNSHIP 26 SOUTH, RANGE 22 WEST, AS A WILDLIFE REFUGE AND POSTED IT AGAINST ALL HUNTING. THE BLM WAS GRANTED AN EASEMENT ON 40 ACRES OF THIS LAND AND NOW ASSUMES TOTAL SURFACE MANAGEMENT. THIS 40 ACRES IS IN THE PROCESS OF BEING EXCHANGED TO THE BLM (SEE LAND ACQUISITION, CLASSIFICATION AND WITHDRAWAL SECTION OF THIS PLAN).

A COOPERATIVE PREDATOR CONTROL PROGRAM WITH THE BUREAU OF SPORT FISHERIES AND WILDLIFE, DIVISION OF WILDLIFE SERVICES SHOULD BE CONDUCTED UNTIL ADEQUATE WATERFOWL HABITAT IS OBTAINED. UPON ACCOMPLISHMENT OF DESIRED HABITAT, THIS PROGRAM SHOULD BE CONCLUDED WITH PROVISIONS FOR LIMITED CONTROL AS DEEMED NECESSARY.

THE CIENEGA IS A NATURAL RESERVOIR FOR LARGE NUMBERS OF PREDATOR SPECIES AS IT IS THE ONLY WATER AREA IN THE VICINITY. THESE PREDATOR SPECIES, UNLESS CONTROLLED, COULD PRECLUDE ADEQUATE PRODUCTION. TYPE OF CONTROL





SHOULD BE SELECTIVE TOWARD THOSE SPECIES PREYING ON THE MEXICAN DUCK.

THE CIENEGA SHOULD BE OPENED DURING THE WINTER MONTHS OF DECEMBER AND JANUARY TO RACCOON HUNTING, IF POSSIBLE. THIS MAY HELP IN REDUCTION OF THE ABUNDANT PREDATOR SPECIES.

THE BULLFROG SEASON SHOULD BE CONTINUED AND LENGTHENED FROM AUGUST 15 TO SEPTEMBER 15 TO ALLOW A BETTER HARVEST OF THIS PREDATOR ON DUCKLINGS. THIS WILL ALLOW THE HUNTER MORE TIME TO BECOME ACQUAINTED WITH THE AREA THUS ENSURING A BETTER HARVEST. RELEASE OF PEN REARED BIRDS SHOULD BE CONTINUED UNTIL A DESIRABLE "WILD" POPULATION IS ESTABLISHED.

D. HABITAT DEVELOPMENT AND/OR IMPROVEMENT.

1. EXISTING DEVELOPMENTS.

A. POTHOLES AND CIENEGA LAKE - NEW MEXICO.

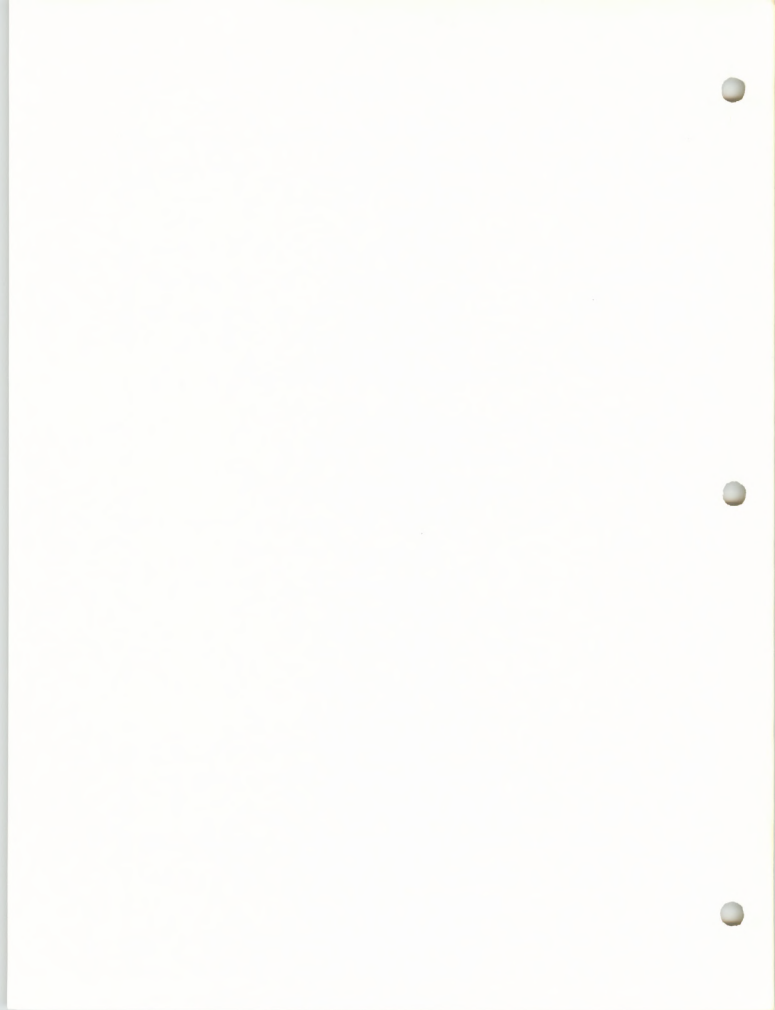
- (1) REBUILD ALL POTHOLES TO SPECIFICATION INCLUDED IN THE APPENDIX PAGES REGARDING DIAGRAMS #1-4.
- (2) CHEMICALLY CONTROL SUNFLOWERS AND AQUATIC EMERGENT VEGETATION (RUSHES AND CATTAILS).
- (3) ESTABLISH COVER SPECIES (SALTGRASS, SEDGES, FOURWING SALTBUCH, MILLET, ETC.) IN THE IMMEDIATE AREAS OF THE POTHOLES AND CIENEGA LAKE.
- (4) REVISE PIPELINE AND INCORPORATE DITCH SYSTEM TO POTHOLES AND CIENEGA LAKE. (SEE DEVELOPMENT OVERLAY)

B. DIKE I POND - ARIZONA.

FENCE OFF TO EXCLUDE LIVESTOCK FROM THE POND AREA. (SEE DEVELOPMENT OVERLAY AND SECTION IN APPENDIX)

C. DIKE II - ARIZONA.

INVESTIGATE THE POSSIBILITY OF USING A SOIL SEALANT ALONG A 30 TO 50 FOOT WIDTH ALONG THE BASE OF THE DIKE TO PREVENT



WATER PIPING (E.G., PACZYME OR ENZYMATIC SEALANT TO BE MIXED INTO THE SOIL). IF THIS PROVES FEASIBLE, A SIGNIFICANT AMOUNT OF SHALLOW DEPTH WATER COULD BE MAINTAINED.

## 2. PROPOSED DEVELOPMENTS.

### A. WELL

A NEW WELL IS TO BE DRILLED NEAR POTHOLE #2 (SEE DEVELOPMENT OVERLAY) DURING THE FISCAL YEAR 1971. THIS NEW WELL PLUS 2 EXISTING WELLS WILL PROVIDE DISTRIBUTION OF 345 ACRE FEET OF WATER THAT HAS BEEN GRANTED TO THE BLM.

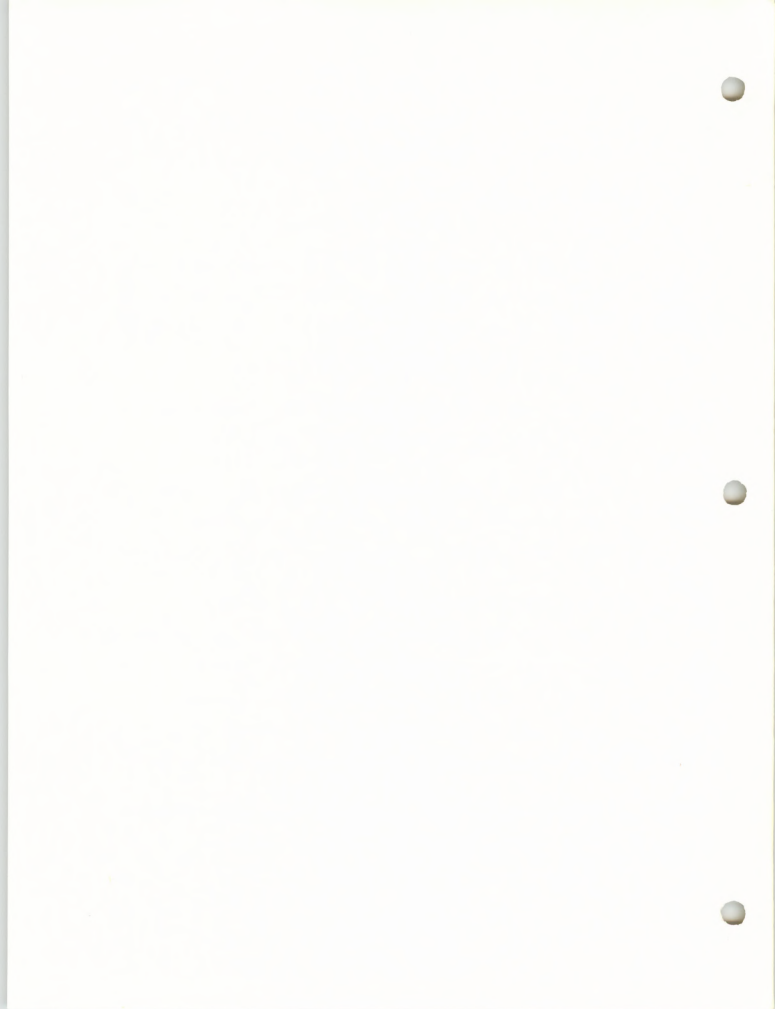
AN ADDITIONAL WELL SHOULD BE DRILLED IN THE EXTREME SOUTH END OF PASTURE 1 (SEE DEVELOPMENT OVERLAY FOR LOCATION).

THIS WELL IS NECESSARY TO PROVIDE DISTRIBUTION OF WATER TO THE SOUTH END OF THE PASTURES. ADDITIONAL WATER RIGHTS SHOULD BE REQUESTED AS NEEDED. (SEE APPENDIX OF PROJECT ESTIMATES).

### B. FLOOD EXISTING CHANNELS

A SERIES OF SMALL SHEET PILING DROP STRUCTURES OR DIKES SHOULD BE INSTALLED IN THE OLD EXISTING DRAINAGE. THESE STRUCTURES WOULD IMPOUND WATER AREAS OF VARYING SIZE AND DEPTH. SOME EXCAVATION WORK IS NEEDED TO OPEN THE OLD CHANNEL, ALSO. (SEE DEVELOPMENT OVERLAY FOR LOCATIONS AND APPENDIX FOR DETAILS).

WATER DEVELOPED IN THIS MANNER WILL SATURATE ADJACENT MEADOW LANDS THEREBY CREATING A DESIRABLE WETLAND MEADOW TYPE WITH INCREASED AMOUNTS OF COVER AND FOOD.



ALL DISTURBED AREAS SHOULD BE RESEEDED AND, IF NECESSARY, WATERED TO ESTABLISH VEGETATIVE COVER TO PREVENT INVASION OF UNDESIRABLE WEEDS.

C. DIKE CONSTRUCTION.

A SERIES OF DIKES IMPOUNDING LARGE AREAS OF VARYING WATER DEPTHS SHOULD BE CONSTRUCTED. (SEE DEVELOPMENT OVERLAY AND APPENDIX FOR DETAILS)

THE ADVANTAGE OF THE LARGE WATER SURFACE AREAS IS TO ALLOW MORE NESTING BY DISCOURAGING MEXICAN DUCK INTRASPECIFIC INTOLERANCE. RESEARCH HAS SHOWN THAT MEXICAN DUCK BREEDING PAIRS SHOW INTOLERANCE TOWARD ONE ANOTHER, BEVILL (1970).

PRESENTLY, POTHOLES WILL SUPPORT 2 MATED PAIR PER POTHOLE. LARGE WATER SURFACE AREAS WILL THEREFORE SUPPORT MORE BREEDING PAIRS.

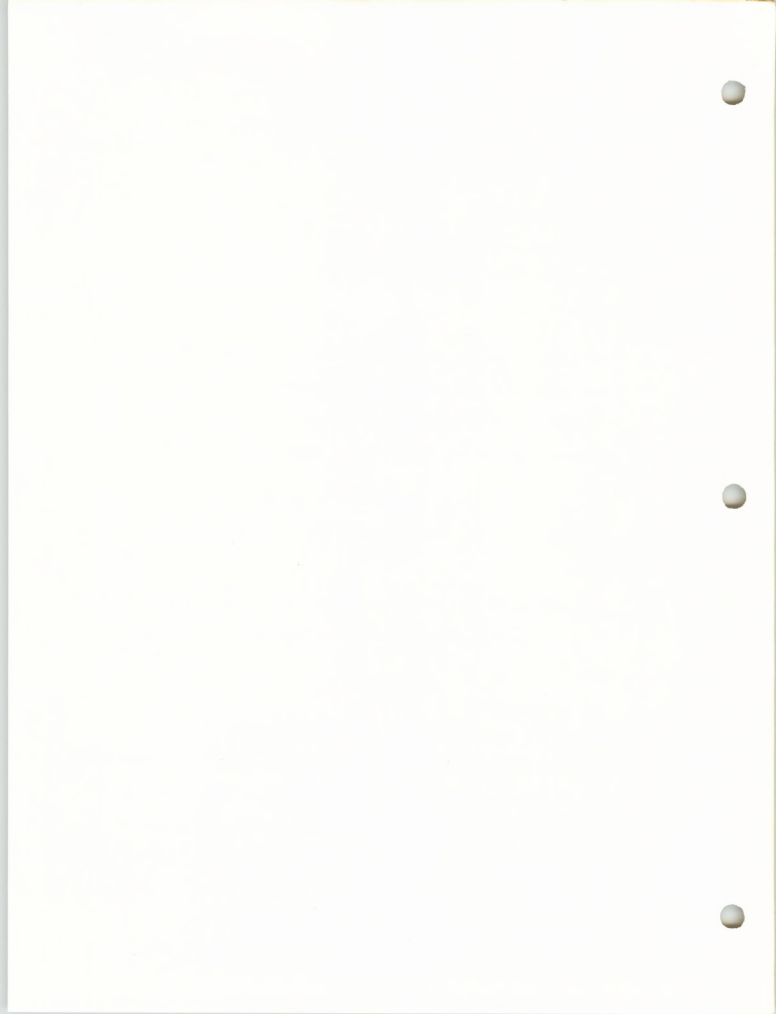
IT IS ESTIMATED THAT THE MAXIMUM PRODUCTIVE POTENTIAL CAN BE ATTAINED WITH THE CONSTRUCTION OF THE PROPOSED SMALL DIKES, LARGE DIKES AND POTHOLES.

D. VEGETATION CONTROL.

CONTROL OF UNDESIRABLE VEGETATION (SUNFLOWERS, COCKLEBURS AND AQUATIC SPECIES WILL BE A CONTINUING PROBLEM IN THE CIENEGA. MANIPULATION OF LIVESTOCK GRAZING SHOULD HELP REDUCE THIS PROBLEM SOMEWHAT, HOWEVER PROVISIONS ARE MADE IN THIS PLAN FOR CHEMICAL CONTROL WHEN NECESSARY. (SEE APPENDIX FOR COST ESTIMATES AND DETAILS)

E. ACCESS DEVELOPMENT, IMPROVEMENT, AND MANAGEMENT.

ADDITIONAL ACCESS DEVELOPMENT, AND IMPROVEMENT IS NOT REQUIRED.



EXISTING ROADS SHOULD BE IMPROVED AND MAINTAINED WHEN THE CIENEGA IS OPENED TO THE PUBLIC.

PUBLIC ACCESS SHOULD BE RESTRICTED TO THE BULLFROG SEASON AND RACCOON HUNTING UNTIL A PEAK, STABLE POPULATION OF THE MEXICAN DUCK IS ATTAINED. AT THIS TIME, CAREFULLY CONTROLLED ACCESS CAN BE ALLOWED. THE AREA SHOULD BE POSTED BY NEW SIGNS TO AID IN ACCESS CONTROL.

F. LAND ACQUISITION, CLASSIFICATION AND WITHDRAWAL (SEE PROPOSED LAND TRANSACTION ON OVERLAY IN THE APPENDIX)

1. S.W. NE. SECTION 12, TOWNSHIP 26, SOUTH, RANGE 22 WEST

THIS 40 ACRE TRACT IS OWNED BY THE NEW MEXICO DEPARTMENT OF GAME AND FISH AND EXCHANGE PROCEEDINGS INITIATED WITH THE BLM. UPON COMPLETION OF THIS EXCHANGE, THE TRACT SHOULD BE SEGREGATED FROM ALL FORMS OF ENTRY INCLUDING MINERAL LEASING UNDER EXISTING LAND AND MINING LAWS THROUGH WITHDRAWAL.

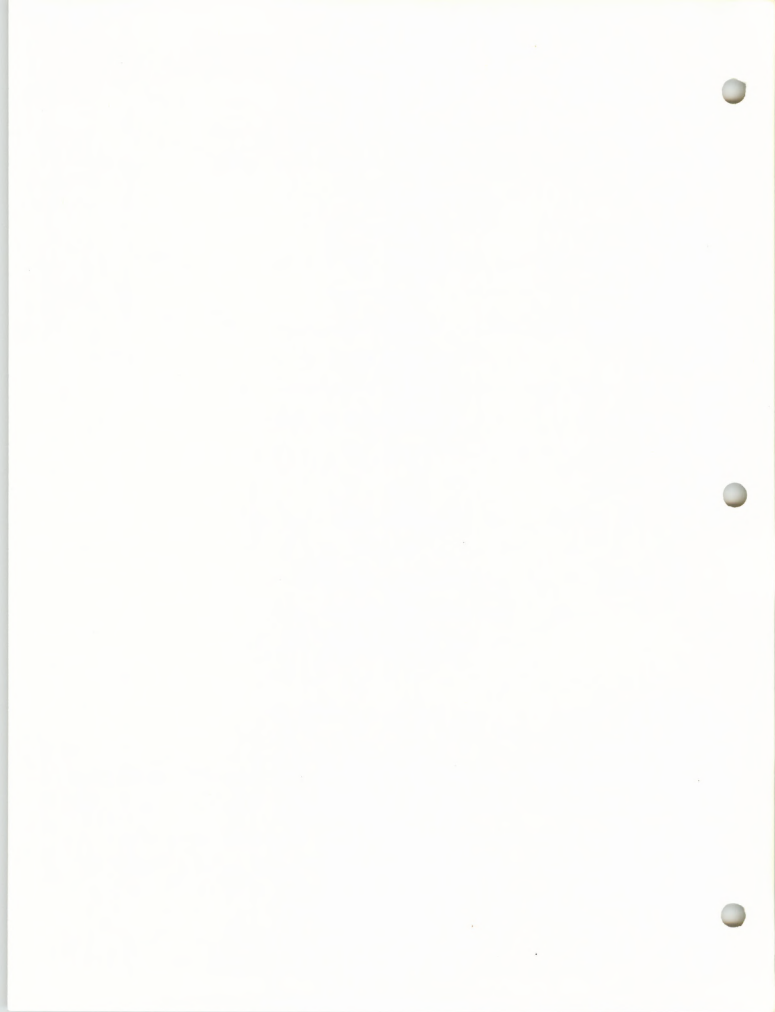
2. E $\frac{1}{2}$  NE $\frac{1}{2}$  AND NE $\frac{1}{2}$  SE - SECTION 12, TOWNSHIP 26 SOUTH, RANGE 22 WEST

THIS 120 ACRE TRACT IS OWNED BY MRS. MAE ROSS OF THE CIENEGA RANCH. EXCHANGE PROCEEDINGS SHOULD BE INITIATED AS THIS LAND CONTAINS VALUABLE HABITAT FOR THE MEXICAN DUCK. IF THE EXCHANGE CAN BE MADE, IT SHOULD BE CLASSIFIED WITH THE 40 ACRE TRACT PREVIOUSLY MENTIONED.

3. NEGOTIATIONS ARE BEING MADE TO EXCHANGE PRIVATE LANDS (DESCRIPTION TO BE INCLUDED LATER) NEAR DIKE 1 AND 2 IN ARIZONA.

G. OTHER

A WATERSHED PROBLEMS EXISTS IN THE CIENEGA. PERIODIC SUMMER FLOODS COULD CAUSE DAMAGE TO EXISTING AND PROPOSED DEVELOPMENT STRUCTURES. MAINTENANCE OF THE STRUCTURES CAN BE A CONSIDERABLE EXPENDITURE OF TIME AND FUNDS. COST OF A MAJOR WATERSHED PROGRAM WOULD FAR EXCEED COST OF PERIODIC MAINTENANCE, HOWEVER.





MANAGEMENT EVALUATION.

UPON COMPLETION AND IMPLEMENTATION OF THIS PLAN, ANNUAL EVALUATION STUDIES WILL BE CONDUCTED TO DETERMINE THE VALUE AND EFFECT OF ALL DEVELOPMENTS AS RELATED TO ACHIEVING STATED OBJECTIVES. (SEE APPENDIX-EVALUATION SECTION - FOR DETAILS)

IMPLEMENTATION SCHEDULE AND COST ESTIMATES.

THE IMPLEMENTATION SCHEDULE AND COST ESTIMATES BY PROJECT ARE INCLUDED IN THE APPENDIX (IMPLEMENTATION AND COST SECTION).

A PROGRAM PACKAGE FOR THE SAN SIMON CIENEGA MEXICAN DUCK HAS BEEN SUBMITTED AND IS ON FILE IN APPROPRIATE STATE AND DISTRICT OFFICES. IF THIS PACKAGE IS NOT APPROVED, A GOOD POSSIBILITY EXISTS THAT EXISTING DEVELOPMENTS WILL BE DEGRADED DUE TO LACK OF MAINTENANCE AND FURTHER DEVELOPMENT WORK WILL BE RESTRICTED.

PROVISION FOR REVIEW AND MODIFICATION.

THIS PLAN WILL BE REVIEWED AND APPROVED BY ALL APPROPRIATE OFFICES OF THE ARIZONA AND NEW MEXICO BLM. THE PLAN WILL THEN BE REVIEWED AND COORDINATED WITH THE ARIZONA AND NEW MEXICO DEPARTMENTS OF GAME AND FISH PRIOR TO APPROVAL.

THE PLAN WILL BE PERIODICALLY REVIEWED BY ALL PARTIES COOPERATING IN THIS PLAN AND MODIFICATIONS MADE, UPON MUTUAL AGREEMENT, WHEN IT BECOMES APPARENT THAT CHANGE IS NECESSARY (I.E., OBJECTIVES NOT BEING MET).

MAPS.

ALL MAPS AND OVERLAYS ASSOCIATED WITH THE SAN SIMON CIENEGA WILDLIFE HABITAT AREA WILL BE ON FILE IN BOTH THE SAFFORD AND LAS CRUCES DISTRICT OFFICES.



APPROVED:

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DISTRICT MANAGER  
LAS CRUCES DISTRICT OFFICE  
NEW MEXICO

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DATE

BLM Library  
Denver Federal Center  
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Denver, CO 80225